MDS-JA30ES

SERVICE MANUAL

US Model
Canadian Model
AEP Model
UK Model



Photo: GOLD

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Model Name Using Similar Mechanism	MDS-JA50ES
MD Mechanism Type	MDM-4B
Base Unit Type	MBU-2B
Optical Pick-up Type	KMS-210A/J-N

SPECIFICATIONS

System	MiniDisc digital audio system
Disc	MiniDisc
Laser	Semiconductor laser (λ = 780 nm) Emission duration: continuous
Laser output	Less than 44.6 µW*
	* This output is the value measured at a distance of 200 mm from the objective lens surface on the Optical Pick-up Block with 7 mm aperture.
Laser diode properties	Material: GaAIAs
Revolutions (CLV)	400 rpm to 900 rpm
Error correction	Advanced Cross Interleave Reed Solomon Code (ACIRC)
Sampling frequency	44.1 kHz
Coding	Adaptive Transform Acoustic Coding (ATRAC)
Modulation system	EFM (Eight-to-Fourteen Modulation)
Number of channels	2 stereo channels
Frequency response	5 to 20,000 Hz ±0.3 dB
Signal-to-noise ratio	Over 104 dB during playback
Wow and flutter	Below measurable limit

Inputs

	Jack type	Input impedance	Rated input	Minimum input
LINE(ANALOG) IN	Phono jacks	47 kilohms	500 mVrms	125 mVrms
DIGITAL IN COAXIAL	Phono jack	75 ohms	0.5 Vp-p, ±20%	—
DIGITAL IN OPT1	Square optical connector jack	Optical wave length: 660 nm	—	—
DIGITAL IN OPT2	Square optical connector jack	Optical wave length: 660 nm	—	—

Outputs

	Jack type	Rated output	Load impedance
PHONES	Stereo phone jack	28 mW	32 ohms
LINE(ANALOG) OUT	Phono jacks	2 Vrms (at 50 kilohms)	Over 10 kilohms
DIGITAL OUT OPTICAL	Square optical connector jack	–18 dBm	Wave length: 660 nm

— Continued on next page —

MINIDISC DECK

MICROFILM

SONY®

General

Power requirements

Where purchased	Power requirements
U.S.A. and Canada	120 V AC, 60 Hz
Continental Europe	220 – 230 V AC, 50/60 Hz

Power consumption 26 W

Dimensions (approx.) (w/h/d) incl. projecting parts
430 × 125 × 345 mm
(17 × 5 × 13 5/8 in.)

Mass (approx.) 9.3 kg (20 lbs 8 oz)

Supplied accessories

See page 4.

Optional accessories

Recordable MDs MDW-60 (60 min), MDW-74 (74 min)
Optical cable POC-15A
Coaxial digital connecting cable
VMC-10

Design and specifications are subject to change without notice.

CAUTION

Danger of explosion if battery is incorrectly replaced.
Replace only with the same or equivalent type recommended by the equipment manufacturer.
Discard used batteries according to manufacture's instructions.

ADVARSEL!

Lithiumbatteri - Eksplosionsfare ved fejlagtig håndtering.
Udskiftning må kun ske med batteri af samme fabrikat og type.
Levér det brugte batteri tilbage til leverandøren.

ADVARSEL

Eksplosjonsfare ved feilakting skifte av batteri.
Benytt samme batteritype eller en tilsvarende type anbefalt av apparatfabrikanten.
Brukte batterier katterier kasseres i henhold til fabrikantens

VARNIG

Explosionsfara vid felaktigt batteribyte.
Använd samma batterityp eller en likvärdig typ som rekommenderas av apparattillverkaren.
Kassera använt batteri enligt gällande föreakrifter.

VAROITUS

Parist voi räjähtää, jos se on virheellisesti asennettu.
Vaihda paristo ainoastaan laitevalmistajan suosittelemaan tyyppiin.
Hävitä käytetty paristo valmistajan ohjeiden mukaisesti.

SAFETY CHECK-OUT

After correcting the original service problem, perform the following safety checks before releasing the set to the customer:
Check the antenna terminals, metal trim, "metallized" knobs, screws, and all other exposed metal parts for AC leakage. Check leakage as described below.

LEAKAGE

The AC leakage from any exposed metal part to earth ground and from all exposed metal parts to any exposed metal part having a return to chassis, must not exceed 0.5 mA (500 microampers). Leakage current can be measured by any one of three methods.

1. A commercial leakage tester, such as the Simpson 229 or RCA WT-540A. Follow the manufacturers' instructions to use these instruments.

2. A battery-operated AC milliammeter. The Data Precision 245 digital multimeter is suitable for this job.

3. Measuring the voltage drop across a resistor by means of a VOM or battery-operated AC voltmeter. The "limit" indication is 0.75 V, so analog meters must have an accurate low-voltage scale. The Simpson 250 and Sanwa SH-63Trd are examples of a passive VOM that is suitable. Nearly all battery operated digital multimeters that have a 2V AC range are suitable. (See Fig. A)

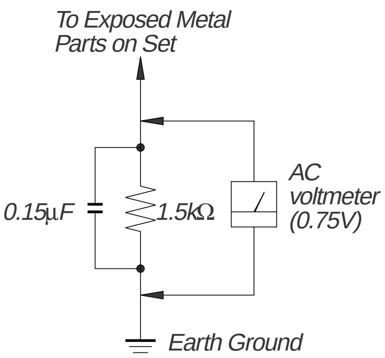


Fig. A. Using an AC voltmeter to check AC leakage.

SAFETY-RELATED COMPONENT WARNING!!

COMPONENTS IDENTIFIED BY MARK ⚠ OR DOTTED LINE WITH MARK ⚠ ON THE SCHEMATIC DIAGRAMS AND IN THE PARTS LIST ARE CRITICAL TO SAFE OPERATION. REPLACE THESE COMPONENTS WITH SONY PARTS WHOSE PART NUMBERS APPEAR AS SHOWN IN THIS MANUAL OR IN SUPPLEMENTS PUBLISHED BY SONY.

ATTENTION AU COMPOSANT AYANT RAPPORT À LA SÉCURITÉ!

LES COMPOSANTS IDENTIFÉS PAR UNE MARQUE ⚠ SUR LES DIAGRAMMES SCHÉMATIQUES ET LA LISTE DES PIÈCES SONT CRITIQUES POUR LA SÉCURITÉ DE FONCTIONNEMENT. NE REMPLACER CES COMPOSANTS QUE PAR DES PIÈSES SONY DONT LES NUMÉROS SONT DONNÉS DANS CE MANUEL OU DANS LES SUPPÉMENTS PUBLIÉS PAR SONY.

The laser component in this product is capable of emitting radiation exceeding the limit for Class 1.

CLASS 1 LASER PRODUCT
LUOKAN 1 LASERLAITE
KLASS 1 LASERAPPARAT

This appliance is classified as a CLASS 1 LASER product. The CLASS 1 LASER PRODUCT MARKING is located on the rear exterior.

The following caution label is located inside the unit.

CAUTION	;	INVISIBLE LASER RADIATION WHEN OPEN. AVOID EXPOSURE TO BEAM.
ADVARSEL	;	USYNLIG LASERSTRÅLING VED ÅBNING NÅR SIKKERHEDSAFBRYDERE ER UDE AF FUNKTION. UNDGÅ UDS ÆTTELSE FOR STRÅLING.
VARO!	;	AVATTAESSA JA SUOJALUKITUS OHITETTAESSA OLET ALTTIINA LASERSÄTEILYLLE.
VARNING	;	LASERSTRÅLING NÄR DENNA DEL ÄR OPPNÄD OCH SPÄRREN ÄR URKOPPLAD.
ADVARSEL	;	USYNLIG LASERSTRÅLING NÅR DEKSEL ÅPNES UNNGÅ EKSPONERING FOR STRÅLEN.

CAUTION
Use of controls or adjustments or performance of procedures other than those specified herein may result in hazardous radiation exposure.

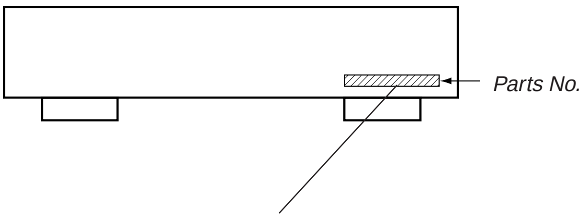
Notes on chip component replacement

- Never reuse a disconnected chip component.
- Notice that the minus side of a tantalum capacitor may be damaged by heat.

Flexible Circuit Board Repairing

- Keep the temperature of soldering iron around 270˚C during repairing.
- Do not touch the soldering iron on the same conductor of the circuit board (within 3 times).
- Be careful not to apply force on the conductor when soldering or unsoldering.

MODEL IDENTIFICATION
— BACK PANEL —



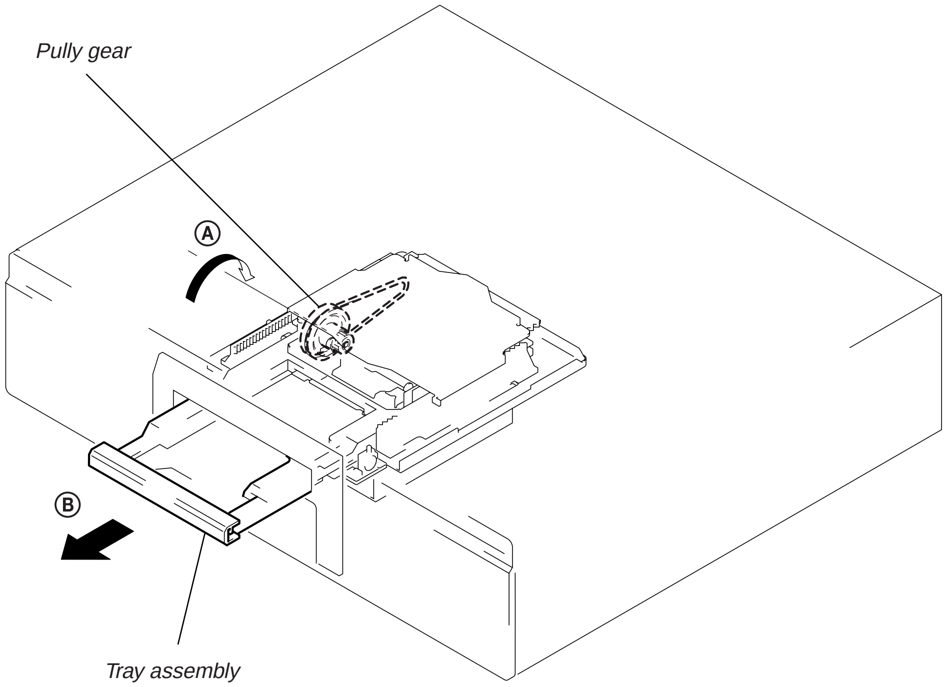
4-992-959-1□ : AEP, UK, German model
4-992-959-2□ : US model
4-992-959-3□ : Canadian model

TABLE OF CONTENTS

SECTION 1
SERVICING NOTE

HOW TO OPEN THE DISC TRAY WHEN POWER SWITCH TURNS OFF

① Remove the sixteen screws (BVTT 3×8) from the bottom plate.
② Remove the bottom plate.
③ Rotate the pulley gear in the arrow direction Ⓐ, and open the tray assembly in the arrow direction Ⓑ.

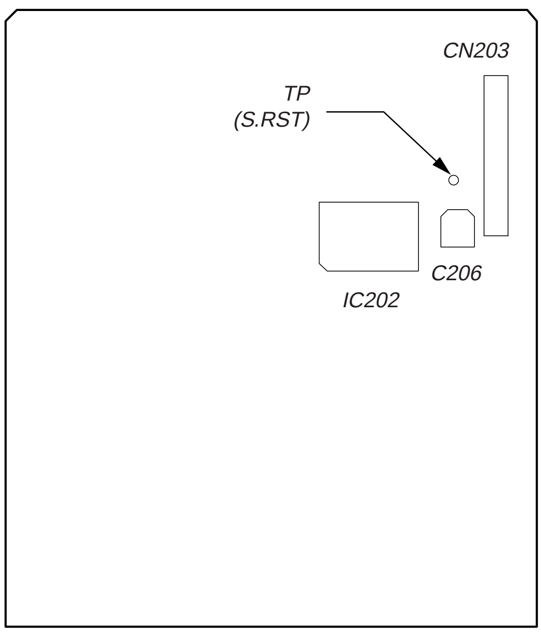


Forced Reset

The system microprocessor can be reset in the following way.
Use these methods when the unit cannot be operated normally due to the overrunning of the microprocessor, etc.

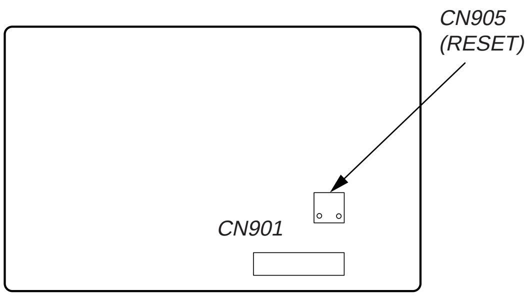
Method 1:
Set TP (S.RST) of the DIG board to ground momentarily.

[DIG board] (Side A)



Method 2:
Disconnect the power plug, and short-circuit CN905 of the PW board with a pair of tweezers, etc.

[PW board] (Component Side)



Retry Cause Display Mode

- In this test mode, the causes for retry of the unit during recording can be displayed on the fluorescent display tube. This is useful for locating the faulty part of the unit.
- The retry cause, number of retries, and number of retry errors are displayed. Each is displayed in hexadecimal number.

Method:

1. Load a recordable disc whose contents can be erased into the unit.
2. Press the ■ button, ≜OPEN/CLOSE button, DISPLAY/CHAR button simultaneously.
3. Press the ● button, and start recording.
4. The ## value increases with each retry. If an error occurs after a retry, the @@ count will also increase.
5. To exit the test mode, press the TIME button.

Fig. 1 Reading the Test Mode Display

R.T s * * c # # e @@

Fluorescent Display Tube Signs

* * : Cause of retry
: Number of retries
@@ : Number of retry errors

All three displays above are in hexadecimal numbers.

Reading the Retry Cause Display

	Higher Bits				Lower Bits				Hexa-decimal	Cause of Retry	Occurring conditions
Hexadecimal	8	4	2	1	8	4	2	1			
Bit	b7	b6	b5	b4	b3	b2	b1	b0			
Binary	0	0	0	0	0	0	0	1	01	shock *1	When more than 3.5 shocks are detected
	0	0	0	0	0	0	1	0	02	ader5	When ADER was counted more than five times continuously
	0	0	0	0	0	1	0	0	04	Discontinuous address	When ADIP address is not continuous
	0	0	0	0	1	0	0	0	08	(Not used)	(Not used)
	0	0	0	1	0	0	0	0	10	FCS incorrect	When not in focus
	0	0	1	0	0	0	0	0	20	IVR rec error	When ABCD signal level exceeds the specified range
	0	1	0	0	0	0	0	0	40	Spindle is slow	When spindle rotation is detected as slow
	1	0	0	0	0	0	0	0	80	Access fault	When access operation is not performed normally

*1 Some displays are not used depending on the microprocessor version.

Reading the Display:
Convert the hexadecimal display into binary display. If more than two causes, they will be added.

Example
When 42 is displayed:
Higher bit : 4 = 0100 → b6
Lower bit : 2 = 0010 → b1
In this case, the retry cause is combined of “spindle is slow” and “ader5”.

When A2 is displayed:
Higher bit : A = 1010 → b7+b5
Lower bit : 2 = 0010 → b1

The retry cause in this case is combined of “access fault”, “IVR rec error”, and “ader5”.

Hexadecimal → Binary Conversion Table

Hexadecimal	Binary	Hexadecimal	Binary
0	0000	8	1000
1	0001	9	1001
2	0010	A	1010
3	0011	B	1011
4	0100	C	1100
5	0101	D	1101
6	0110	E	1110
7	0111	F	1111

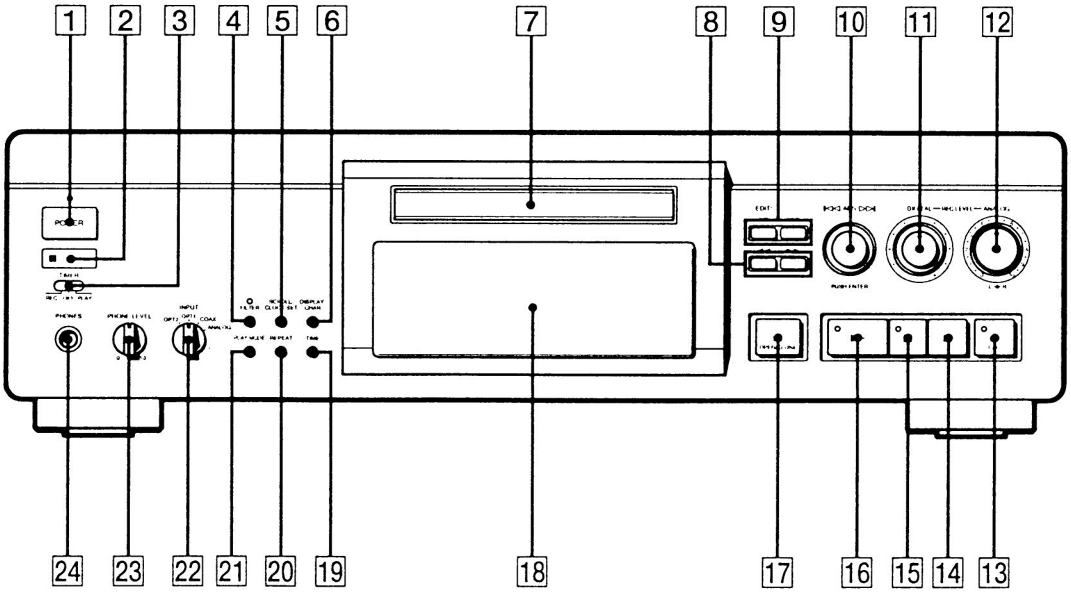
Reference:
In this test mode, when the ▷ button is pressed, and the disc is played back, the “PLAYBACK MODE” is set.
The display becomes as shown in Fig. 2. The playback mode is not used in particular during servicing.

▲▲ △△△△△△ ■

Fig. 2 Display during Playback Mode
▲▲ : Parts No. (Name of area named on TOC)
△△△△△△ : Address (Physical address on disc)
■ : Track mode (Copyright information of each part, information on copyright, etc.)

SECTION 2
GENERAL

This section is extracted from instruction manual.

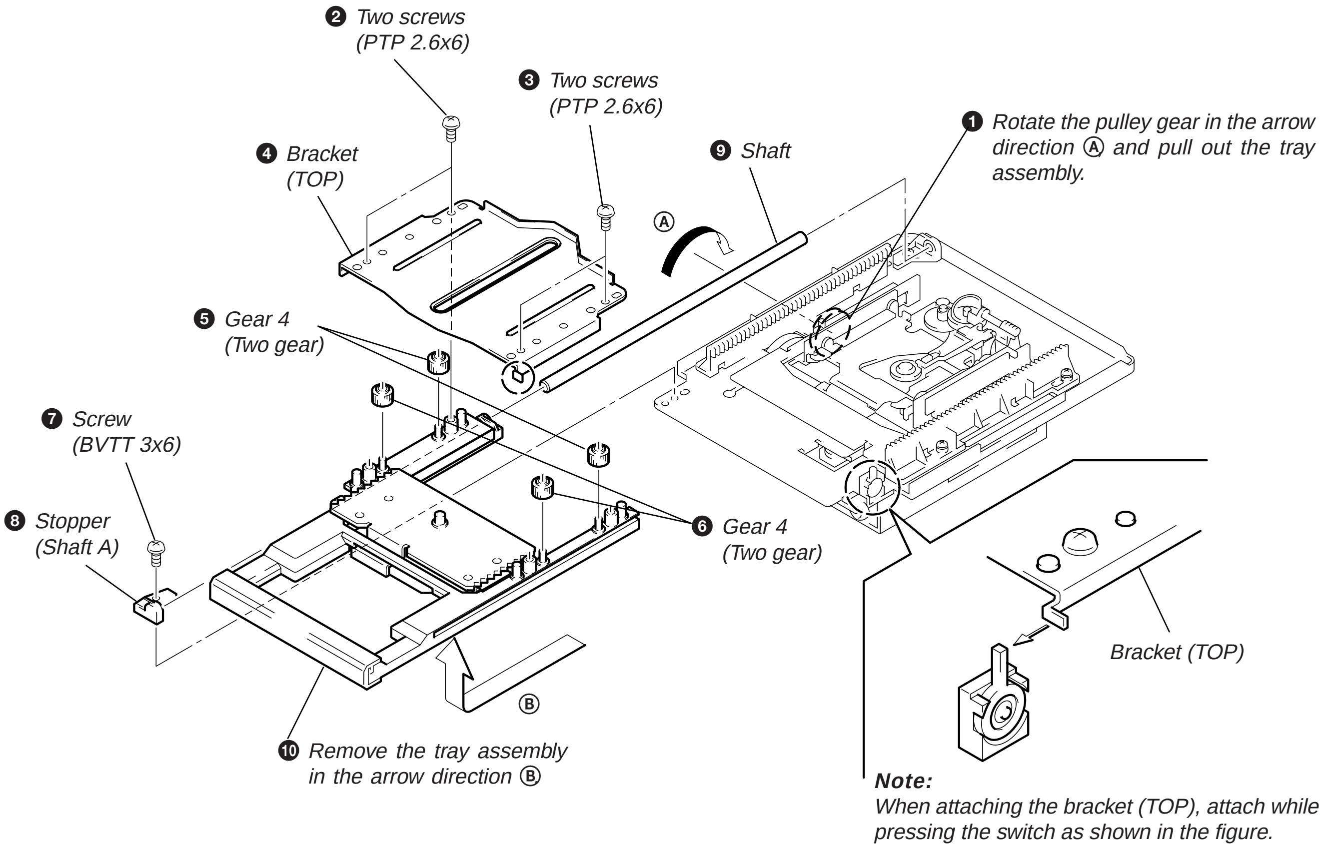


1 POWER switch
2 Remote sensor
3 TIMER switch
4 FILTER button
5 SCROLL/CLOCK SET button
6 DISPLAY/CHAR button
7 Disc tray
8 ◀◀/▶▶ (fast backward/fast forward) buttons
9 EDIT/NO/YES buttons
10 AMS knob
11 DIGITAL REC LEVEL knob
12 ANALOG REC LEVEL L/R knob
13 ● REC (recording) button
14 ■ (stop) button
15 ❚❚ (pause) button
16 ▶ (play) button
17 ≜ OPEN/CLOSE button
18 Display window
19 TIME button
20 REPEAT button
21 PLAY MODE button
22 INPUT switch
23 PHONE LEVEL knob
24 PHONES jack

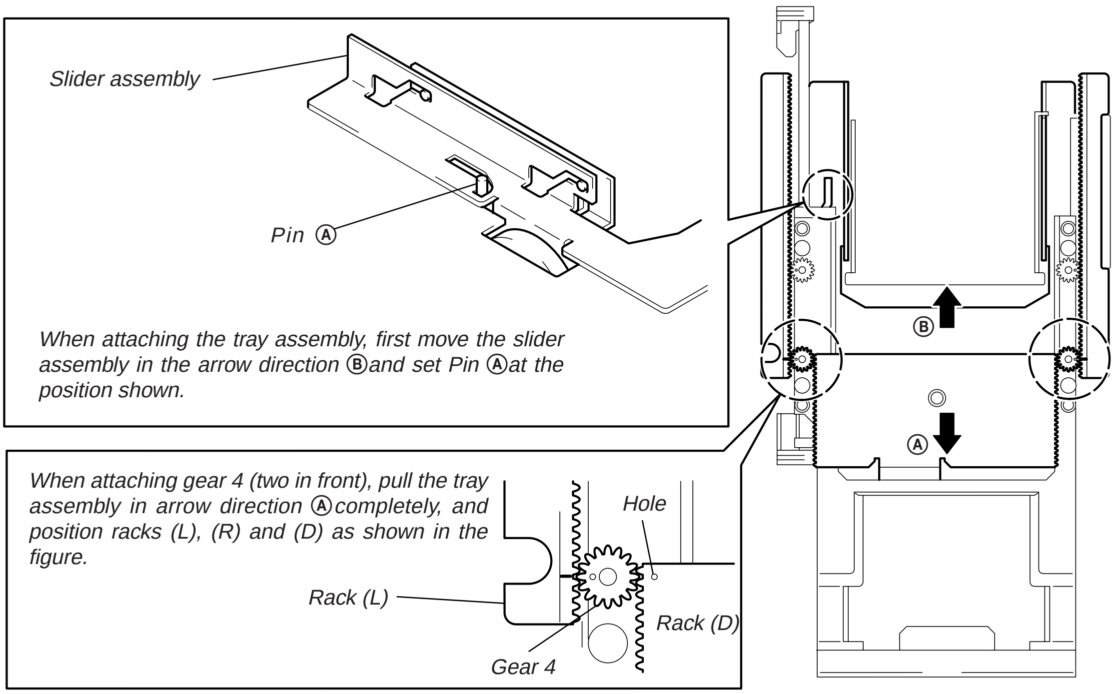
SECTION 3
DISASSEMBLY

Note : Follow Xthe disassembly procedure in the numerical order given.

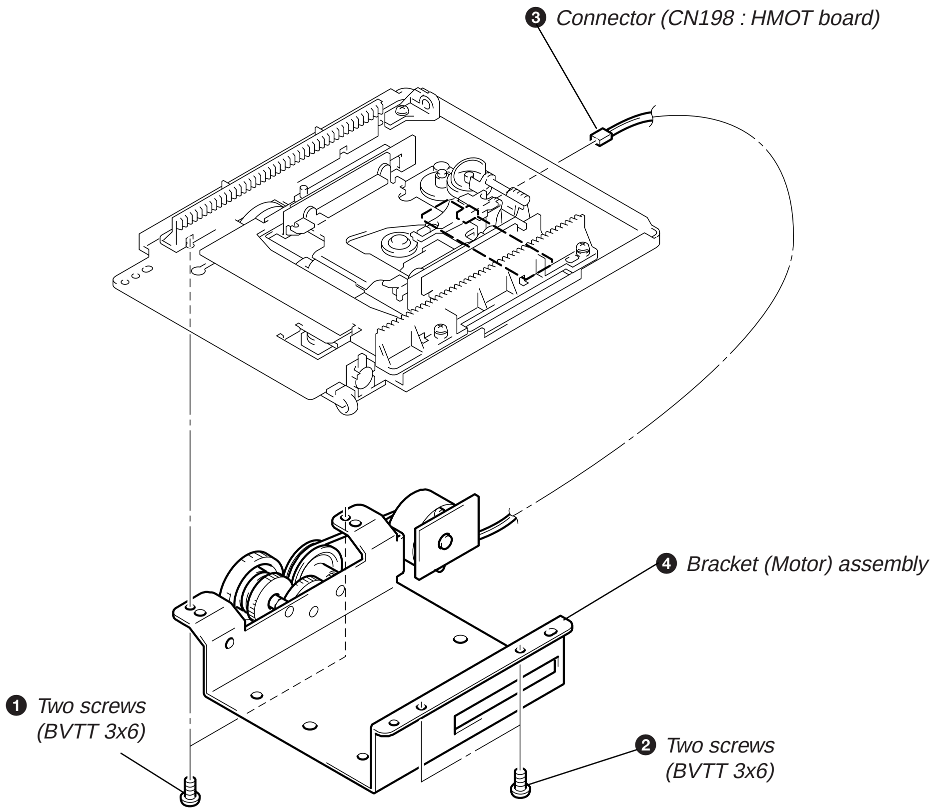
3-1. TRAY ASSEMBLY



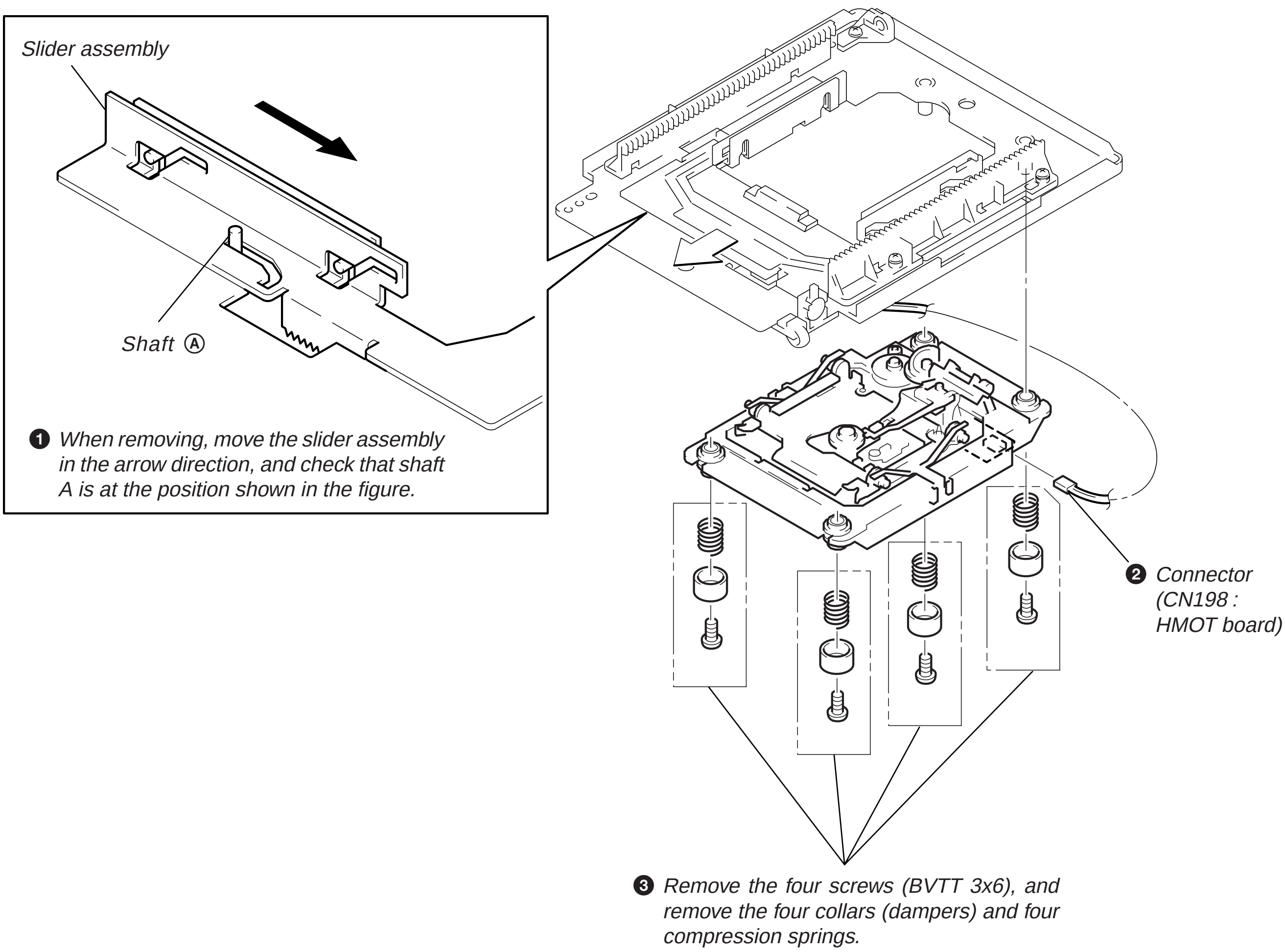
- **Precautions on Attaching**
  (Assemble in the reverse order of removal.)



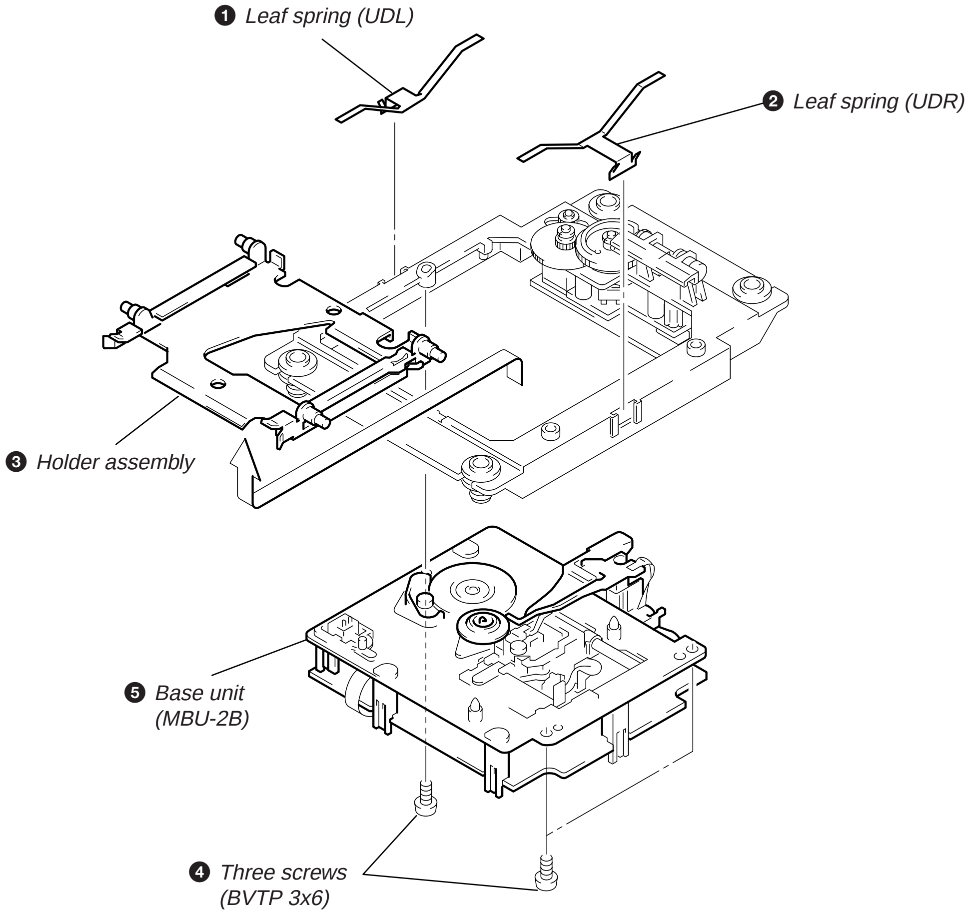
3-2. BRACKET (MOTOR) ASSY



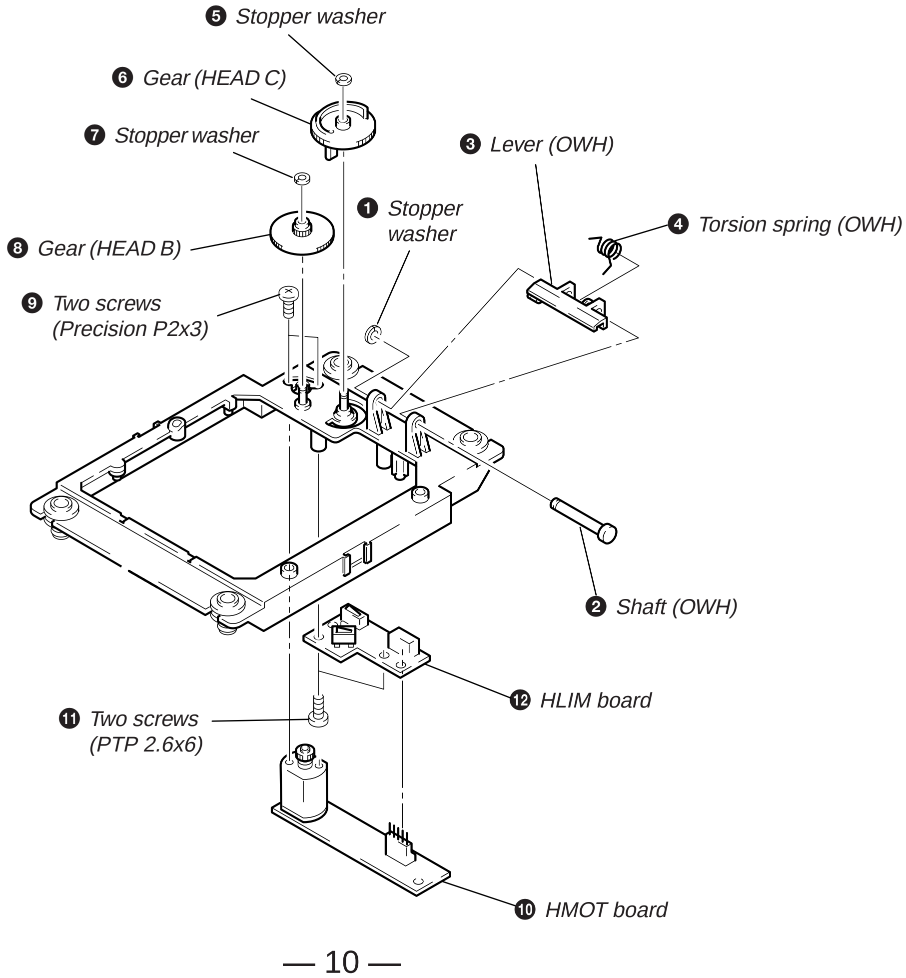
3-3. HOLDER ASSY



3-4. BASE UNIT



3-5. HMOT BOARD AND HLIM BOARD



SECTION 4
TEST MODE

4-1. Setting the Test Mode

While pressing the AMS knob, insert the power plug into the power supply inlet, and release the AMS knob.

4-2. Exiting the Test Mode

Press the REPEAT button. Unplug the power plug from an outlet.

4-3. Basic Operations of the Test Mode

All operations are performed using the AMS knob, YES button, and NO button.
The functions of these buttons are as follows.

Function	Contents
AMS knob	Changes parameters and modes
YES button	Proceeds onto the next step. Finalizes input.
NO button	Returns to previous step. Stops operations.



Test Mode initial display

4-4. Selecting the Test Mode

Eight test modes are selected by turning the AMS knob.

Display	Contents
TEMP ADJUS	Temperature compensation offset adjustment
LDPWR ADJUS	Laser power adjustment
EFBAL ADJUS	Traverse adjustment
FBIAS ADJUS	Focus bias adjustment
FBIAS CHECK	Focus bias check
CPLAY MODE	Continuous playback mode
CREC MODE	Continuous recording mode
EEP MODE	Non-volatile memory mode *

For detailed description of each adjustment mode, refer to 5. Electrical Adjustments.
If a different adjustment mode has been selected by mistake, press the NO button to exit from it.
* The EEP MODE is not used in servicing. If set accidentally, press the NO button immediately to exit it.

4-4-1. Operating the Continuous Playback Mode

1. Entering the continuous playback mode
   ① Set the disc in the unit (either MO or CD).(MO: Recordable disc, CD: Disc for playback only).
   ② Rotate the AMS knob and display “CPLAY MODE”.
   ③ Press the YES button to change the display to “CPLAY IN”.
   ④ When access completes, the display changes to “C =□□□□ AD = – –”.
   Note : The “□” displayed are arbitrary numbers.
2. Changing the parts to be played back
   ① Press the YES button during continuous playback to change the display to “CPLAY MID”, “CPLAY OUT”.
   When pressed another time, the parts to be played back can be changed.
   ② When access completes, the display changes to “C = □□□□AD = – –”.
   Note : The “□” displayed are arbitrary numbers.
3. Ending the continuous playback mode
   ① Press the NO button. The display will change to “CPLAY MODE”.
   ② Press the ≜OPEN/CLOSE button and remove the disc.
   Note 1 : The playback start addresses for IN, MID, and OUT are as follows.
   IN 40h cluster
   MID 300h cluster
   OUT 700h cluster

4-4-2. Operating the Continuous Recording Mode

1. Entering the continuous recording mode
   ① Set the MO disc in the unit.
   ② Rotate the AMS knob and display “CREC MODE”.
   ③ Press the YES button to change the display to “CREC IN”.
   ④ When access completes, the display changes to “CREC (□□□□” an **REC** lights up.

   Note : The “□” displayed are arbitrary numbers.
2. Changing the parts to be recorded
   ① When the YES button is pressed during continuous recording, the display changes to “CREC MID”, “CREC OUT” and **REC** goes off.
   When pressed another time, the parts to be recorded can be changed.
   ② When access completes, the display changes to “CREC (□□□□” and **REC** lights up.

   Note : The “□” displayed are arbitrary numbers.
3. Ending the continuous recording mode
   ① Press the NO button. The display changes to “CREC MODE” and **REC** goes off.
   ② Press the ≙OPEN/CLOSE button and remove the disc.

Note 1 : The recording start addresses for IN, MID, and OUT are as follows.
IN 40h cluster
MID 300h cluster
OUT 700h cluster
Note 2 : The NO button can be used to stop recording anytime.
Note 3 : During the test mode, the erasing-protection tab will not be detected. Therefore be careful not to set the continuous recording mode when a disc not to be erased is set in the unit.
Note 4 : Do not perform continuous recording for long periods of time above 5 minutes.
Note 5 : During continuous recording, be careful not to apply vibration.

4-4-3. Non-Volatile Memory Mode

This mode reads and writes the contents of the non-volatile memory.
It is not used in servicing. If set accidentally, press the NO button immediately to exit it.

4-5. Functions of Other buttons

Function	Contents
▷	Sets continuous playback when pressed in the STOP state. When pressed during continuous playback, the tracking servo turns ON/OFF.
■	Stops continuous playback and continuous recording.
▶▶	The sled moves to the outer circumference only when this is pressed.
◀◀	The sled moves to the inner circumference only when this is pressed.
●	Turns recording ON/OFF when pressed during continuous playback.
SCROLL/ CLOCK SET	Switches between the pit and groove modes when pressed.
PLAY MODE	Switches the spindle servo mode (CLVS and A).
DISPLAY/ CHAR	Switches the display when pressed.Returns to previous step. Stops operations.

Note : The erasing-protection tab is not detected during the test mode. Recording will start regardless of the position of the erasing-protection tab when the ● button is pressed.

4-6. Test Mode Displays

Each time the DISPLAY/CHAR button is pressed, the display changes in the following order.

MODE display → Error rate display → Address display

1. MODE display
   Displays “TEMP ADJUS”, “CPLAY MODE”, etc.
2. Error rate display
   Error rates are displayed as follows.
   C =□□□□ AD = □□
   C = : Indicates C error
   AD = : Indicates ADER
3. Address display
   Addresses are displayed as follows.
   “h □□□□ s □□□□” (MO pit and CD)
   “h □□□□ a □□□□” (MO groove)
   h : Header address
   s : SUBQ address
   a : ADIP address
   * “—” is displayed when the address cannot be read.

4-7. Meanings of Other Displays

Display	Contents		
	Light	Off	Blinking
▷	During continuous playback	STOP	
❚❚	Tracking servo OFF	Tracking servo ON	
REC	Recording mode ON	Recording mode OFF	
CLOCK	CLV LOCK	CLV UNLOCK	
TRACK	Pit	Groove	
DISC	High reflection	Low reflection	
DATE	CLV-S	CLV-A	
A. SPACE	ABCD adjustment completed		
A – B	(Focus auto gain successful Tracking auto gain successful)		(Focus auto gain successful Tracking auto gain failed)

4-8. Precautions for Use of Test Mode

① As loading related operations will be performed regardless of the test mode operations being performed, be sure to check that the disc is stopped before setting and removing it.
Even if the ≜OPEN/CLOSE button is pressed while the disc is rotating during continuous playback, continuous recording, etc., the disc will not stop rotating.
Therefore, it will be ejected while rotating.
Always press the NO button first before pressing the ≜OPEN/CLOSE button.

② The erasing-protection tab is not detected in the test mode. Therefore, when modes which output the recording laser power such as continuous recording mode and traverse adjustment mode, etc. are set, the recorded contents will be erased regardless of the position of the tab. When using a disc that is not to be erased in the test mode, be careful not to enter the continuous recording mode and traverse adjustment mode.

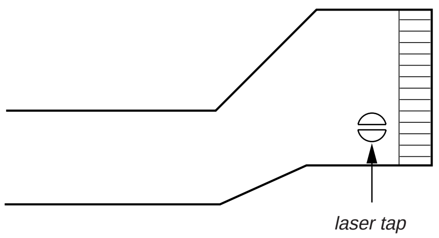
SECTION 5
ELECTRICAL ADJUSTMENTS

Precautions for Checking Laser Diode Emission

To check the emission of the laser diode during adjustments, never view directly from the top as this may lose your eye-sight.

Precautions for Use of optical pick-up (KMS-210A)

As the laser diode in the optical pick-up is easily damaged by static electricity, solder the laser tap of the flexible board when using it. Before disconnecting the connector, desolder first. Before connecting the connector, be careful not to remove the solder. Also take adequate measures to prevent damage by static electricity. Handle the flexible board with care as it breaks easily.



Optical pick-up flexible board

- Abbreviation
  MO : Recordable disc
  CD : Disc for playback only

Precautions for Adjustments

1) When replacing the following parts, perform the adjustments and checks with ○ in the order shown in the following table.

	Optical Pick-up	BD Board		
		IC171	D101	IC101, IC121, IC191
1. Temperature compensation offset adjustment	×	○	○	○
2. Laser power adjustment	○	×	×	○
3. Traverse adjustment	○	○	×	○
4. Focus bias adjustment	○	○	×	○
5. Error rate check	○	○	×	○

2) Set the test mode when performing adjustments.
   After completing the adjustments, exit the test mode.
3) Perform the adjustments in the order shown.
4) Use the following tools and measuring devices.
   - Check Disc (CD) TGYS-1 (Parts No. 4-963-646-01)
   - Laser power meter LPM-8001 (Parts No. J-2501-046-A)
   - Oscilloscope
   - Digital voltmeter
   - Thermometer
5) When observing several signals on the oscilloscope, etc., make sure that VC and ground do not connect inside the oscilloscope.
   (VC and ground will become short-circuited.)

Creating Continuously Recorded Disc

* This disc is used in focus bias adjustment and error rate check. The following describes how to create a continuous recording disc.

1. Insert a MO disc (blank disc) commercially available.
2. Rotate the AMS knob and display “CREC MODE”.
3. Press the YES button and display “CREC IN”.
4. Press the YES button again to display “CREC MID”.
   “CREC (0300” is displayed for a moment and recording starts.
5. Complete recording within 5 minutes.
6. Press the NO button and stop recording .
7. Press the ≙OPEN/CLOSE button and remove the MO disc.

The above has been how to create a continuous recording data for the focus bias adjustment and error rate check.

Note :
- Be careful not to apply vibration during continuous recording.

Temperature Compensation Offset Adjustment

Save the temperature data at that time in the non-volatile memory as 25 ˚C reference data.

Note :

1. Usually, do not perform this adjustment.
2. Perform this adjustment in an ambient temperature of 22 ˚C to 28 ˚C. Perform it immediately after the power is turned on when the internal temperature of the unit is the same as the ambient temperature.
3. When D101 has been replaced, perform this adjustment after the temperature of this part has become the ambient temperature.

Adjusting Method :

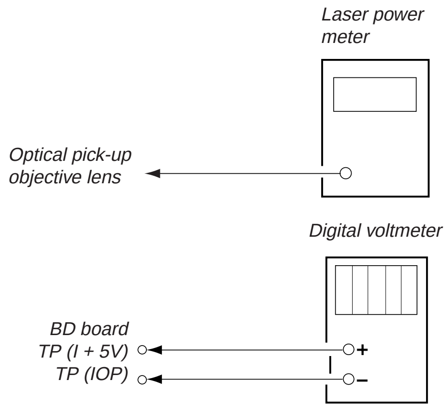
1. Rotate the AMS knob and display “TEMP ADJUS”.
2. Press the YES button and select the “TEMP ADJUS” mode.
3. “TEMP = □□” and the current temperature data will be displayed.
4. To save the data, press the YES button.
   When not saving the data, press the NO button.
5. When the YES button is pressed, “TEMP = □□ SAV” will be displayed for some time, followed by “TEMP ADJUS”.
   When the NO button is pressed, “TEMP ADJUS” will be displayed.

Specifications :

The “TEMP = □□” should be within “E0 - EF”, “F0 - FF”, “00 - 0F”, “10 - 1F” and “20 - 2F”.

Laser Power Adjustment

Connection :



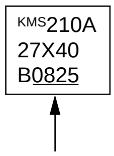
Adjusting Method :

1. Set the laser power meter on the objective lens of the optical pick-up. (When it cannot be set properly, press the ◀◀ button or ▶▶ button and move the optical pick-up.)
   Connect the digital volt meter to TP (IOP) and TP (I+5V).
2. Rotate the AMS knob and display “LDPWR ADJUS”.
   (Laser power : For adjustment)
3. Press the YES button twice and display “LD $ 4B = 3.5 m”.
4. Adjust RV102 of the BD board so that the reading of the laser power meter becomes 3.45 ± 0.1mW.
5. Press the YES button and display “LD $ 96 = 7.0 m”.
   (Laser power : MO writing)
6. Check that the laser power meter and digital voltmeter readings satisfy the specified value.

Specification :

Laser power meter reading : $7.0^{+0.2}_{-0.3}$ mW
Digital voltmeter reading : Optical pick-up displayed value ± 10%

(Optical pick-up label)



Iop = 82.5 mA in this case
Iop (mA) = Digital voltmeter reading (mV)/ 1 (Ω)

7. Press the YES button and display “LD $ 0F = 0.7 m”.
   (Laser power : MO reading)
8. Check that the laser power meter at this time satisfies the specified value.

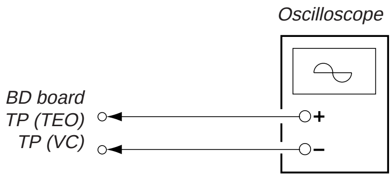
Specification :

Laser power meter reading : $0.70^{+0.05}_{-0.1}$ mW

9. Press the NO button and display “LDPWR ADJUS”, and stop laser emission.
   (The NO button is effective at all times to stop the laser emission.)

Traverse Adjustment

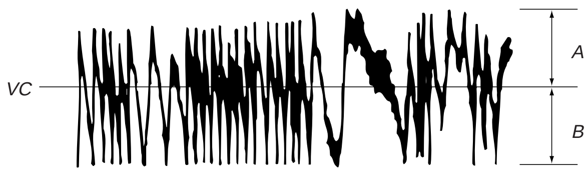
Connection :



Adjusting method :

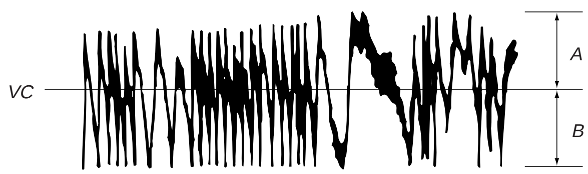
1. Connect an oscilloscope to TP (TEO) and TP (VC) of the BD board.
2. Load a MO disc (any available on the market).
3. Press the ◀◀ button or ▶▶ button and move the optical pick-up outside the pit.
4. Rotate the AMS knob and display “EFBAL ADJUS”.
5. Press the YES button and display “EFBAL MO-W”.
   (Laser power WRITE power/Focus servo ON/tracking servo OFF/spindle (S) servo ON)
6. Adjust RV101 of the BD board so that the waveform of the oscilloscope becomes the specified value.
   (MO groove write power traverse adjustment)

   (Traverse Waveform)



Specification A = B

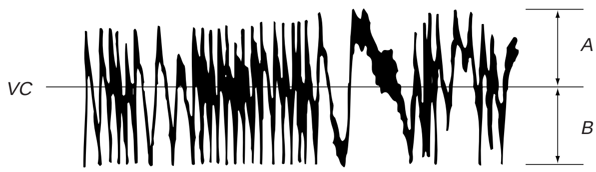
7. Press the YES button and display “EFB = $ ⬚ MO-R”.
   (Laser power : MO reading)
8. Rotate the AMS knob so that the waveform of the oscilloscope becomes the specified value.
   (When the AMS knob is rotated, the ⬚ of “EFB = $ ⬚” changes and the waveform changes.) In this adjustment, waveform varies at intervals of approx. 3%. Adjust the waveform so that the specified value is satisfied as much as possible.
   (MO groove read power traverse adjustment)



Specification A=B

(Traverse Waveform)

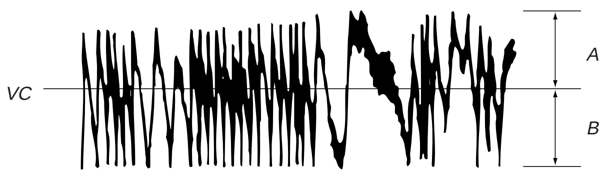
9. Press the YES button, display “EFB = $ ⬚ SAV” for a moment and save the adjustment results in the non-volatile memory.
   Next “EFBAL MO-P” is displayed.
10. Press the YES button and display “EFB = $ ⬚ MO-P”.
    The optical pick-up moves to the pit area automatically and servo is imposed.
11. Rotate the AMS knob until the waveform of the oscilloscope moves closer to the specified value.
    In this adjustment, waveform varies at intervals of approx. 3%. Adjust the waveform so that the specified value is satisfied as much as possible.



Specification A=B

(Traverse Waveform)

12. Press the YES button, display “EFB = $ ⬚ SAV” for a moment and save the adjustment results in the non-volatile memory.
    Next “EFBAL CD” is displayed. The disc stops rotating automatically.
13. Press the ⏏OPEN/CLOSE button and remove the MO disc.
14. Load the check disc (MD) TDYS-1.
15. Press the YES button and display “EFB = $ ⬚ CD”. Servo is imposed automatically.
16. Rotate the AMS knob so that the waveform of the oscilloscope moves closer to the specified value.
    In this adjustment, waveform varies at intervals of approx. 3%. Adjust the waveform so that the specified value is satisfied as much as possible.



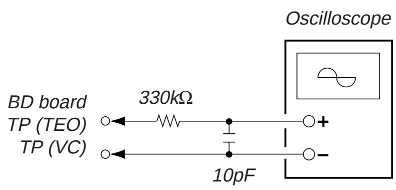
Specification A=B

(Traverse Waveform)

17. Press the YES button, display “EFB = $ ⬚ SAV” for a moment and save the adjustment results in the non-volatile memory.
    Next “EFBAL ADJUS” is displayed.
18. Press the ⏏OPEN/CLOSE button and remove the test disc TDYS-1.

Note 1 : Data will be erased during MO reading if a recorded disc is used in this adjustment.

Note 2 : If the traverse waveform is not clear, connect the oscilloscope as shown in the following figure so that it can be seen more clearly.



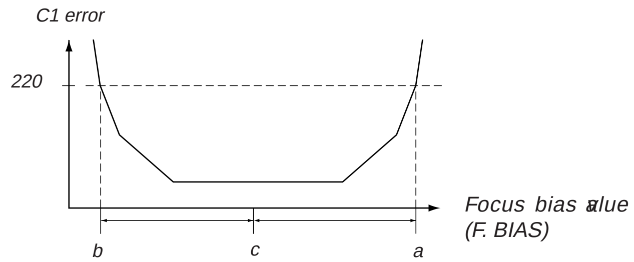
Focus Bias Adjustment

Adjusting Method :

1. Load a continuously recorded disc (Refer to “Page 14 Creating Continuously Recorded Disc”.).
2. Rotate the AMS knob and display “CPLAY MODE”.
3. Press the YES button twice and display “CPLAY MID”.
4. Press the NO button when “C =□□□□AD =□□” is displayed.
5. Rotate the AMS knob and display “FBIAS ADJUS”.
6. Press the YES button and display “□□□□/□□ a =□□”.
   The first four digits indicate the C1 error rate, the two digits after [/] indicate ADER, and the 2 digits after [a =] indicate the focus bias value.
7. Rotate the AMS knob in the clockwise direction and find the focus bias value at which the C1 error rate becomes 220.
8. Press the YES button and display “□□□□/□□ b =□□”.
9. Rotate the AMS knob in the counterclockwise direction and find the focus bias value at which the C1 error rate becomes 220.
10. Press the YES button and display “□□□□/□□ c =□□”.
11. Check that the C1 error rate is below 50 and ADER is 00. Then press the YES button.
12. If the “(□□” in “□□-□□-□□ (□□” is above 20, press the YES button.
    If below 20, press the NO button and repeat the adjustment from step 2 again.
13. Press the NO button and press the ≙OPEN/CLOSE button to remove the continuously recorded disc.

Note 1 : The relation between the C1 error and focus bias is as shown in the following figure. Find points a and b in the following figure using the above adjustment. The focal point position C is automatically calculated from points a and b.

Note 2 : As the C1 error rate changes, perform the adjustment using the average value.



Error Rate Check
CD Error Rate Check

Checking Method :

1. Load a check disc TGYS-1.
2. Rotate the AMS knob and display “CPLAY MODE”.
3. Press the YES button twice and display “CPLAY MID”.
4. “C =□□□□AD =□□” is displayed.
5. Check that the C1 error rate is below 20.
6. Press the NO button, stop playback, press the ≙OPEN/CLOSE button, and remove the test disc.

MO Error Rate Check

Checking Method :

1. Load a continuously recorded disc (Refer to “Page 14 Creating Continuously Recorded Disc”.).
2. Rotate the AMS knob and display “CPLAY MODE”.
3. Press the YES button twice and display “CPLAY MID”.
4. “C =□□□□AD =□□” is displayed.
5. If the C1 error rate is below 50, check that ADER is 00.
6. Press the NO button, stop playback, press the ≙OPEN/CLOSE button, and remove the continuously recorded disc.

Focus Bias Check

Change the focus bias and check the focus tolerance amount.

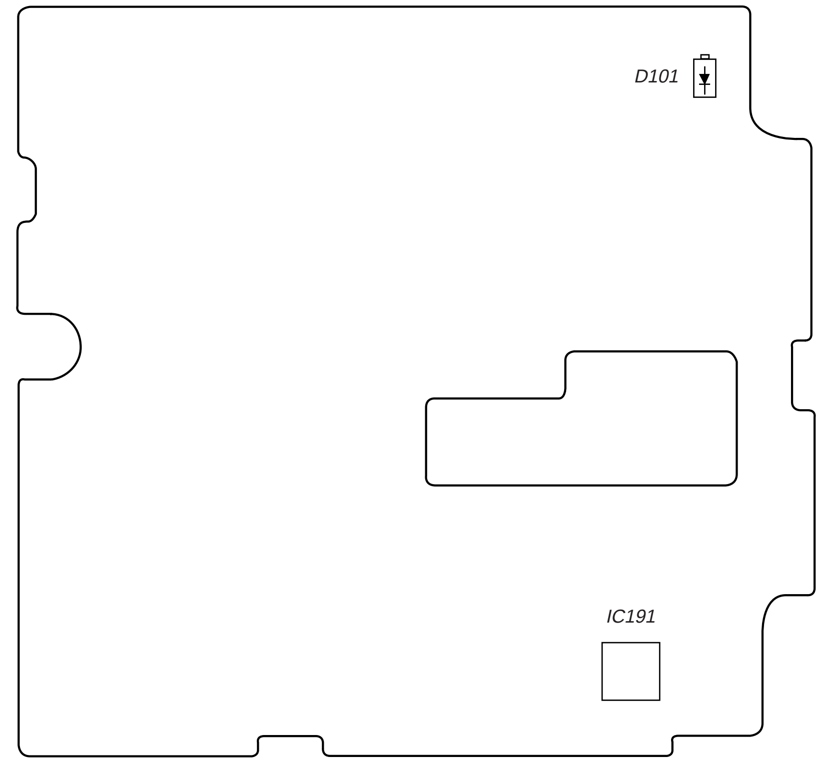
Checking Method :

1. Load a continuously recorded disc (Refer to “Page 14 Creating Continuously Recorded Disc”.).
2. Rotate the AMS knob and display “CPLAY MODE”.
3. Press the YES button twice and display “CPLAY MID”.
4. Press the NO button when “C =□□□□AD =□□” is displayed.
5. Rotate the AMS knob and display “FBIAS CHECK”.
6. Press the YES button and display “ □□□□/□□ c =□□”.
   The first four digits indicate the C1 error rate, the two digits after [/] indicate ADER, and the 2 digits after [c =] indicate the focus bias value.
   Check that the C1 error is below 50 and ADER is 00.
7. Press the YES button and display “ □□□□/□□ b =□□”.
   Check that the C1 error is not below 220 and ADER is not above 00 every time.
8. Press the YES button and display “□□□□/□□ a =□□”.
   Check that the C1 error is not below 220 and ADER is not above 00 every time.
9. Press the NO button, next press the ≙OPEN/CLOSE button, and remove the continuously recorded disc.

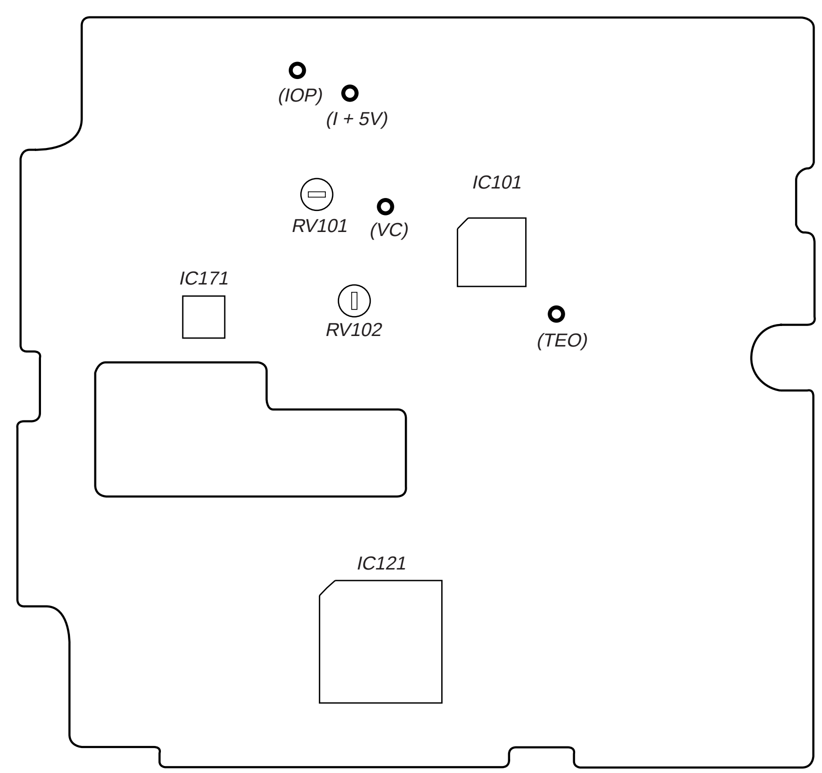
Note 1 : If the C1 error and ADER are above 00 at points a or b, the focus bias adjustment may not have been carried out properly. Adjust perform the beginning again.

Adjusting Points and Connecting Points

[BD BOARD] (SIDE A)

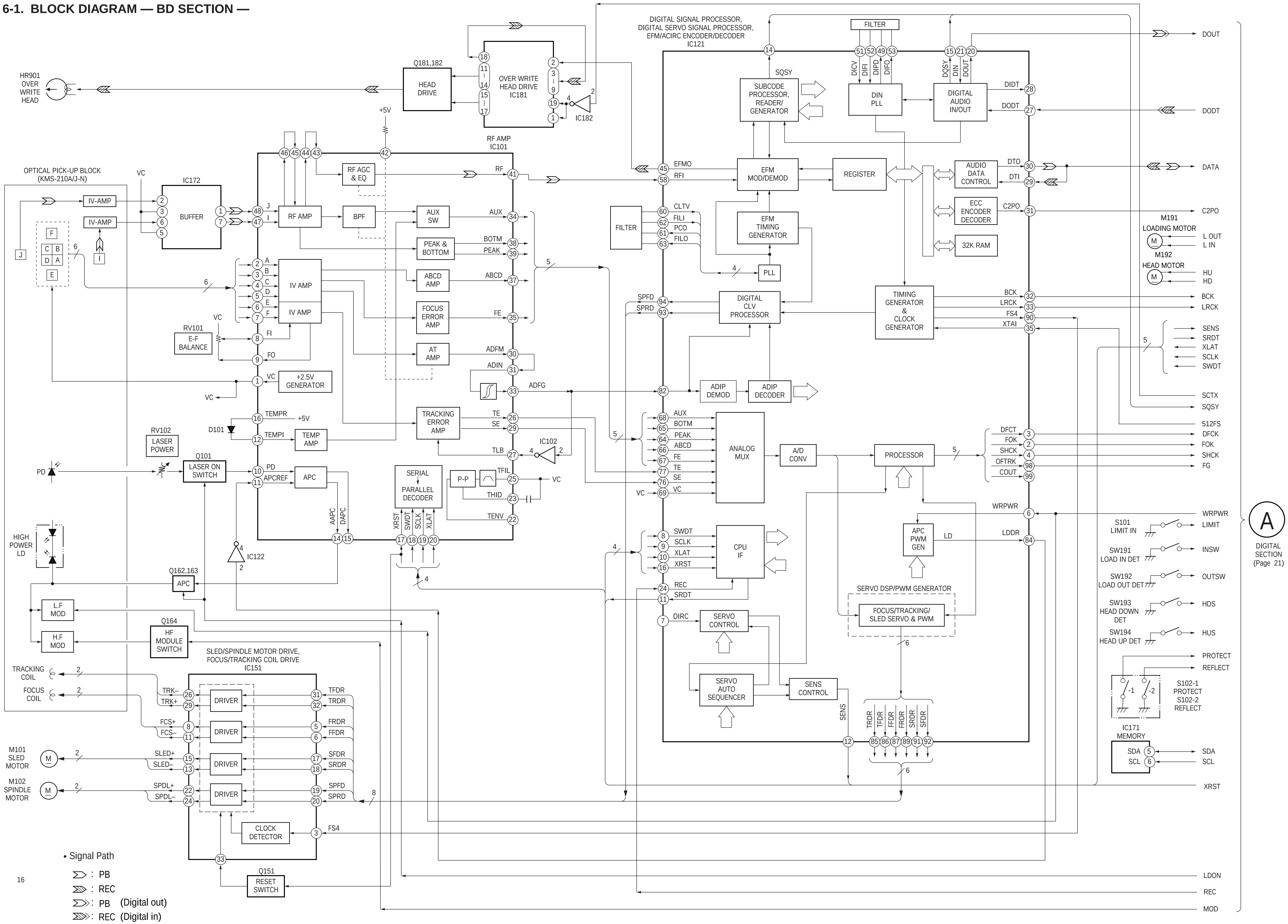


[BD BOARD] (SIDE B)



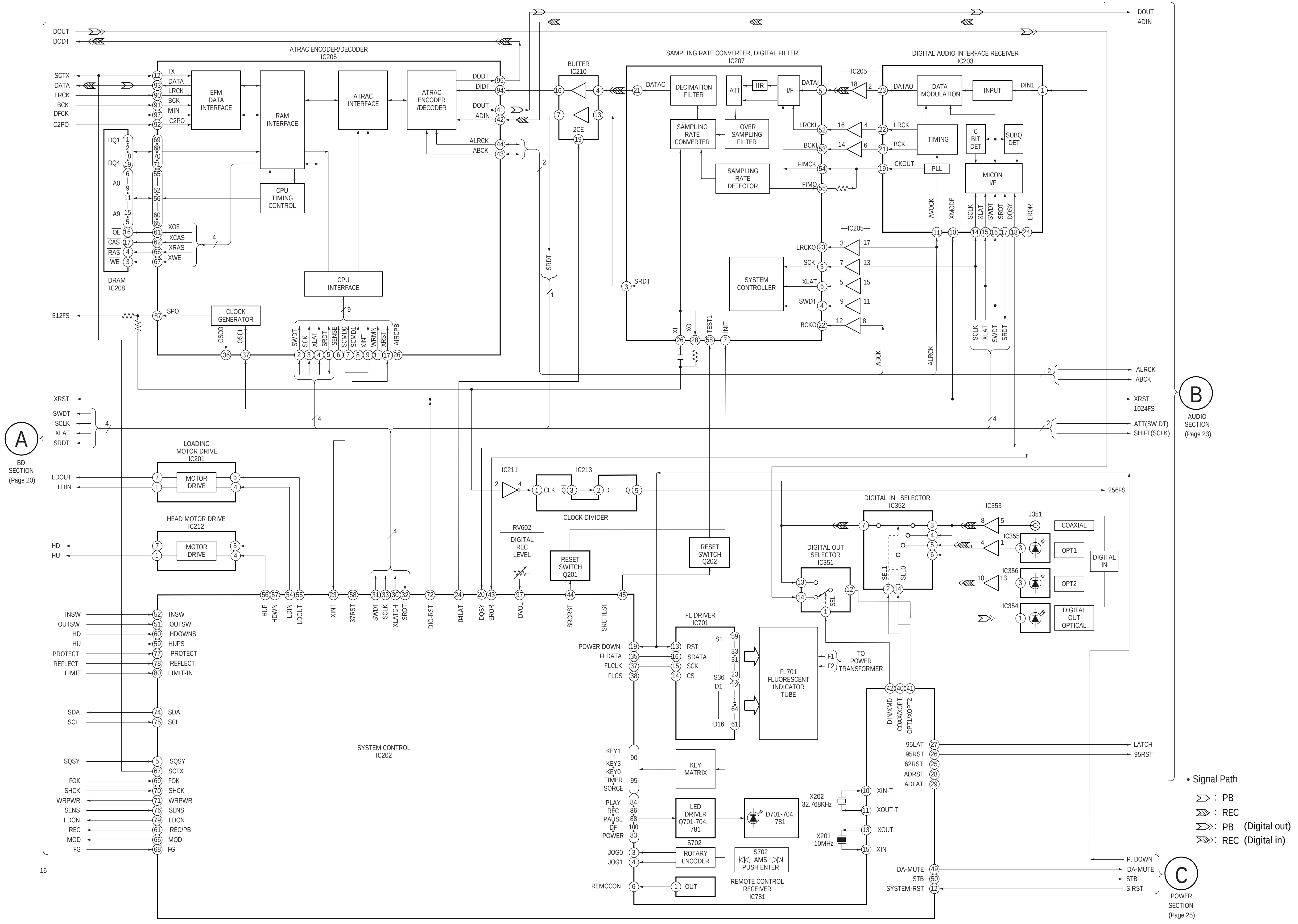
SECTION 6
DIAGRAMS

6-1. BLOCK DIAGRAM — BD SECTION —

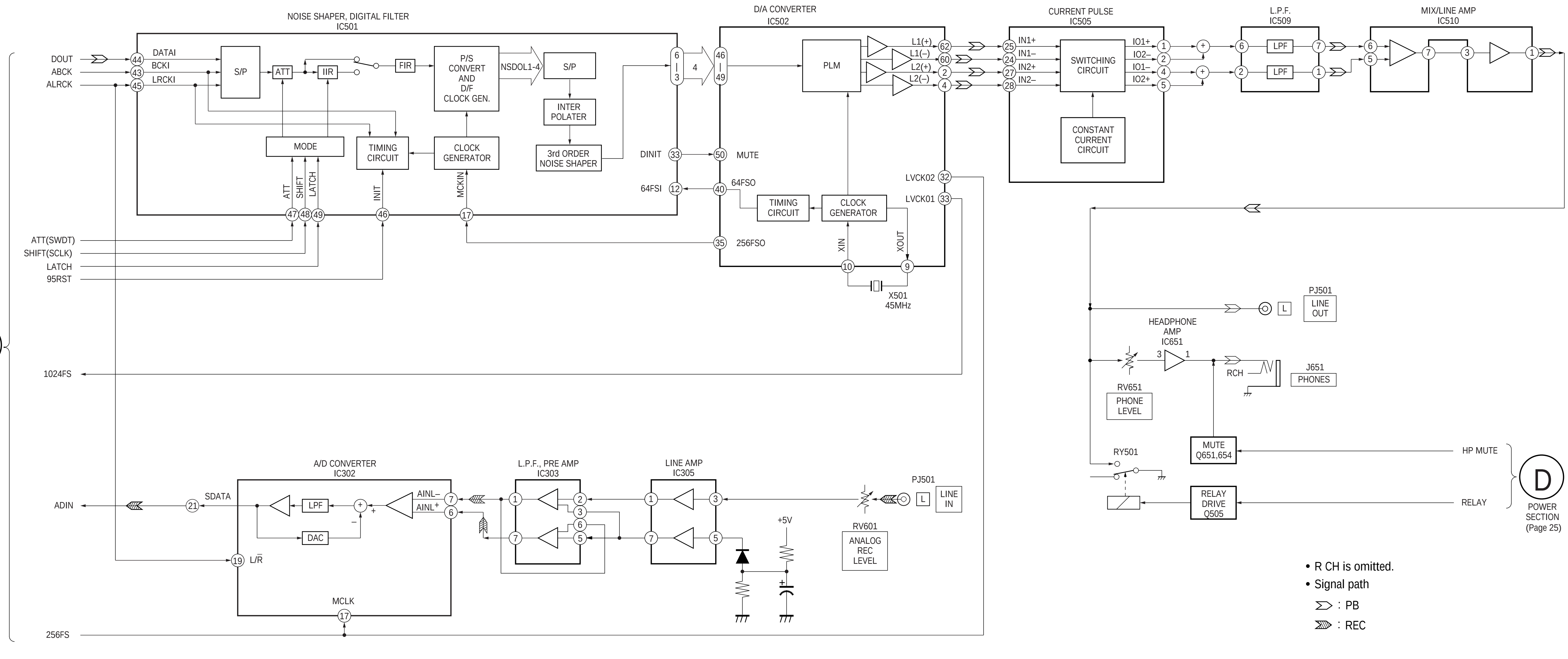


16

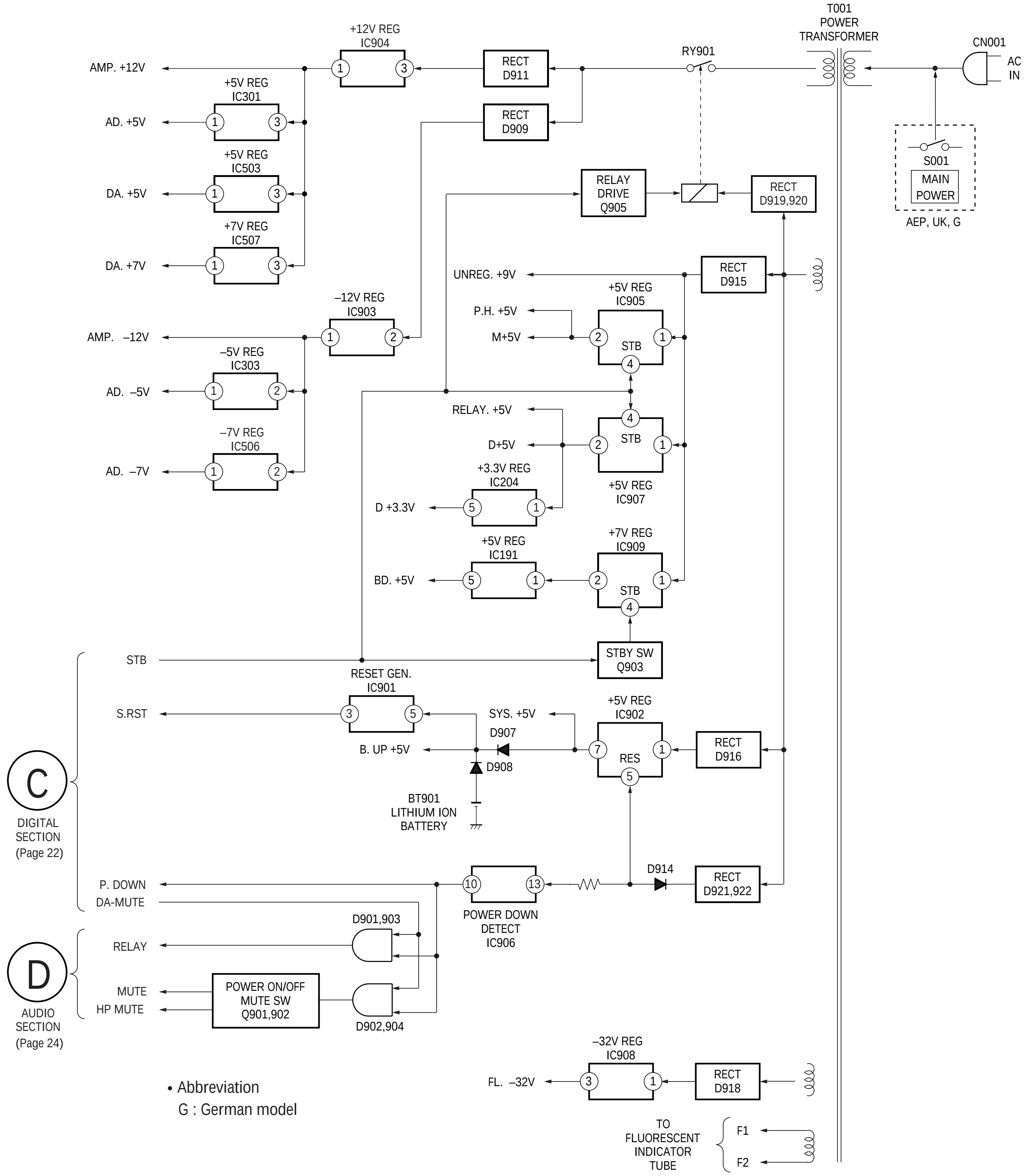
6-2. BLOCK DIAGRAM — DIGITAL SECTION —



6-3. BLOCK DIAGRAM — AUDIO SECTION —



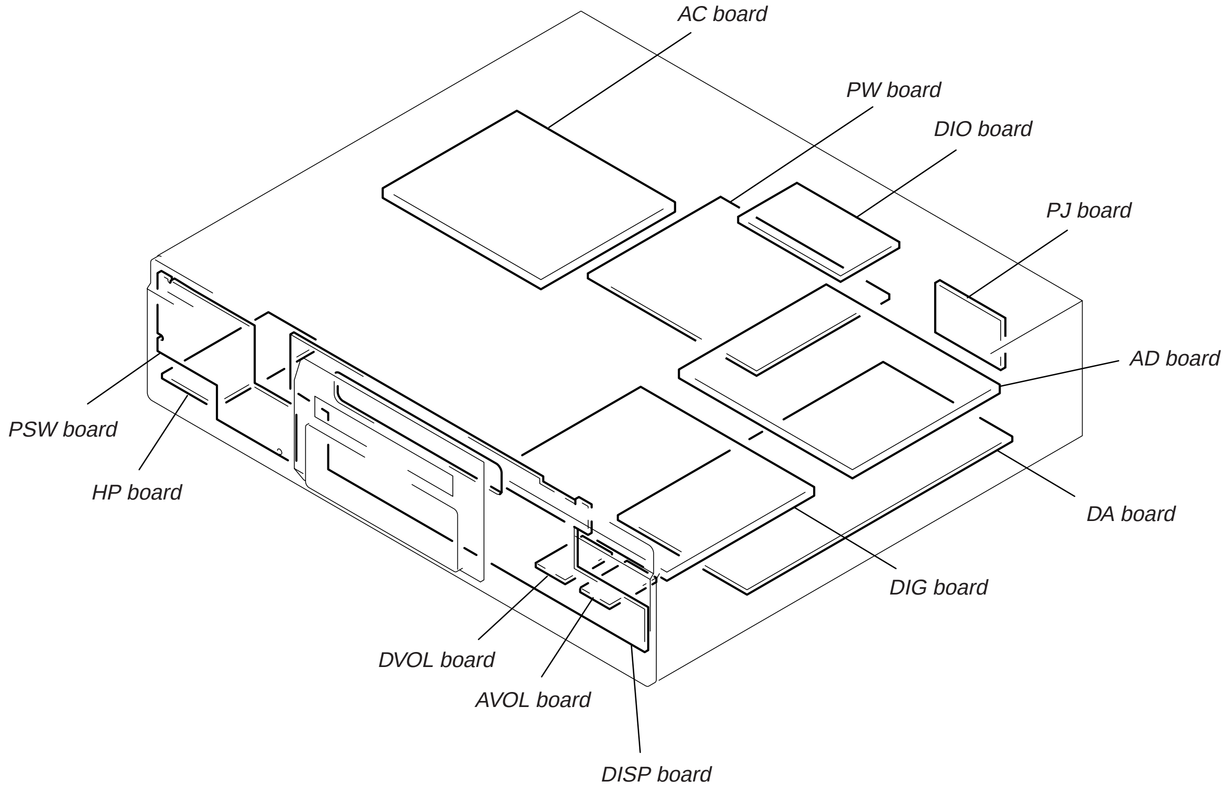
6-4. BLOCK DIAGRAMS — POWER SECTION —

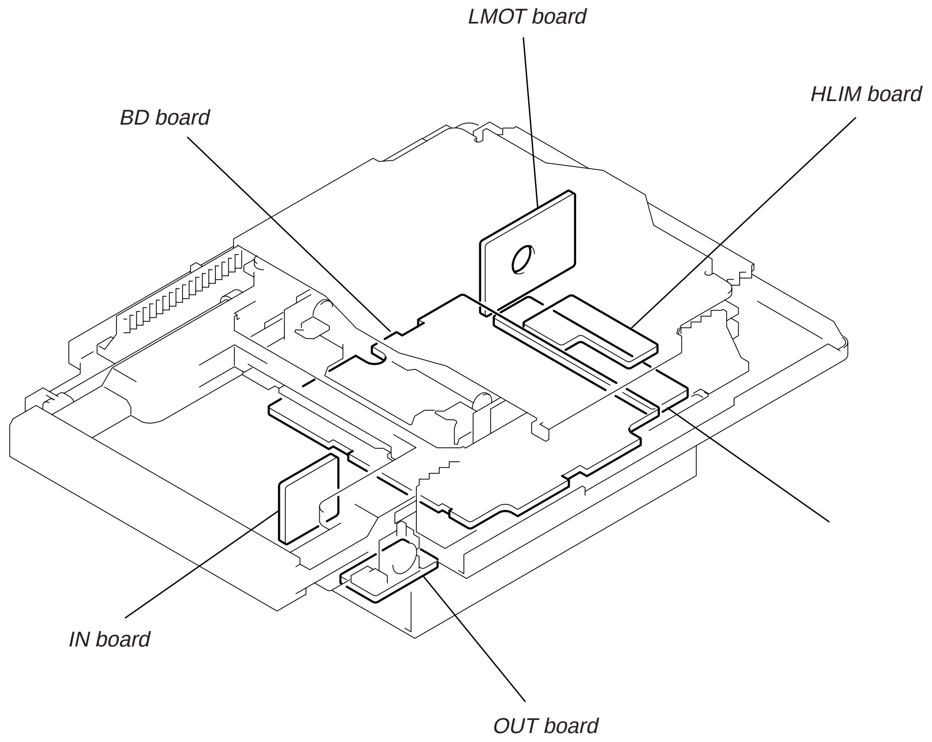


• Abbreviation
G : German model

16

6-5. CIRCUIT BOARDS LOCATION

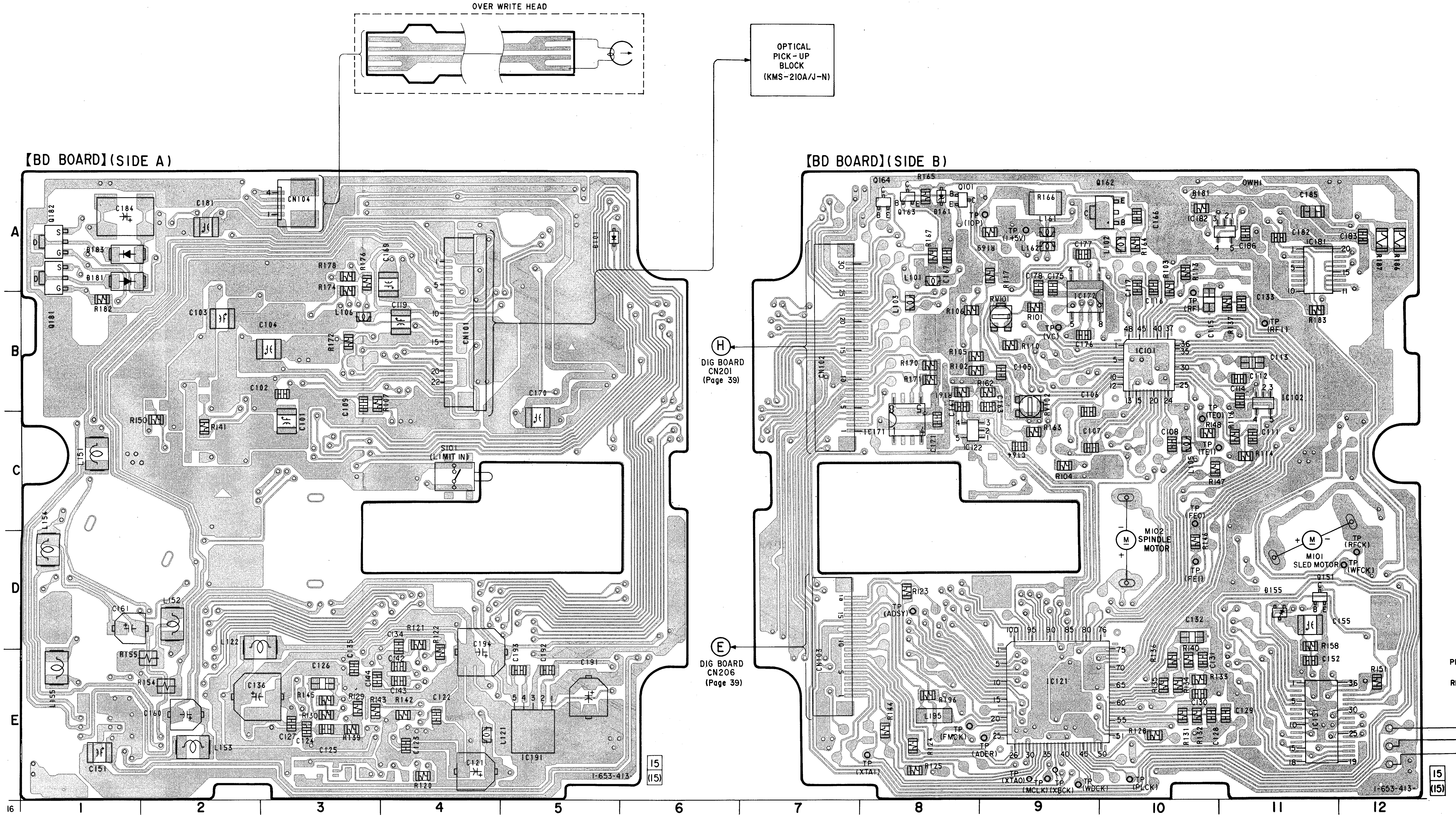




6-6. PRINTED WIRING BOARD — BD SECTION —

• **Semiconductor Location**

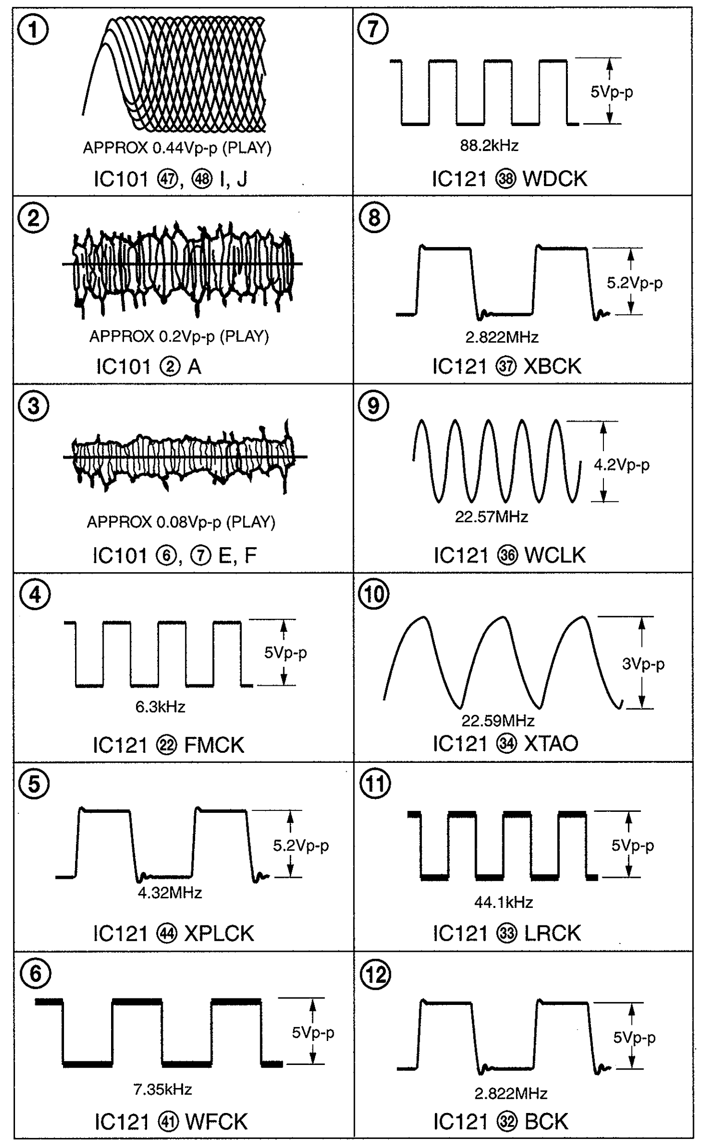
Ref. No.	Location
D101	A-5
D155	D-11
D161	A-8
D181	A-1
D183	A-1
IC101	B-10
IC102	B-11
IC121	E-9
IC122	C-8
IC151	E-11
IC171	C-8
IC172	B-9
IC181	A-11
IC182	A-10
IC191	E-5
Q101	A-8
Q151	D-11
Q162	A-10
Q163	A-8
Q164	A-8
Q181	B-1
Q182	A-1

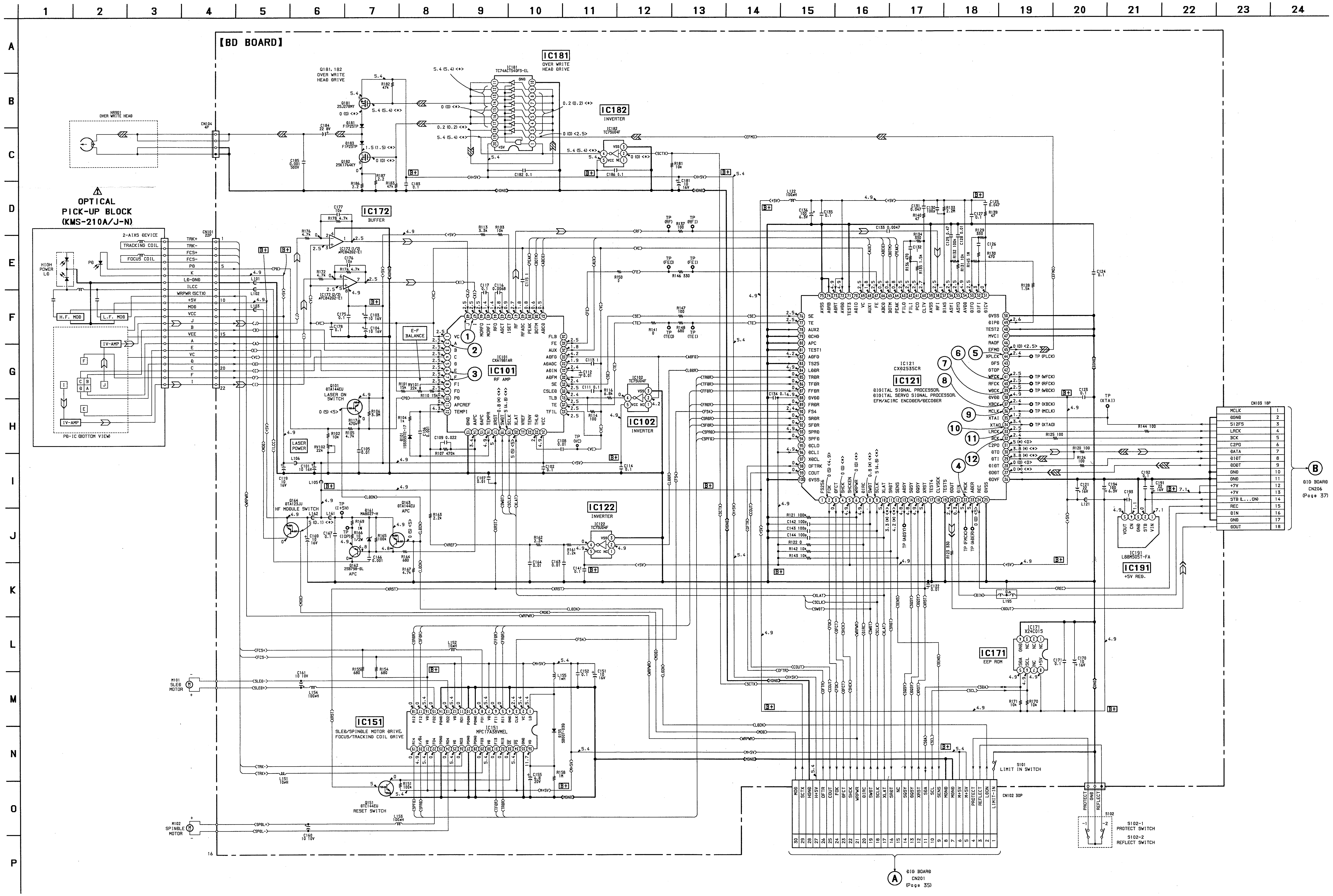


Note:

- ○—— : Parts extracted from the component side.
- ▭ : Pattern on the side which is seen.

• Waveform





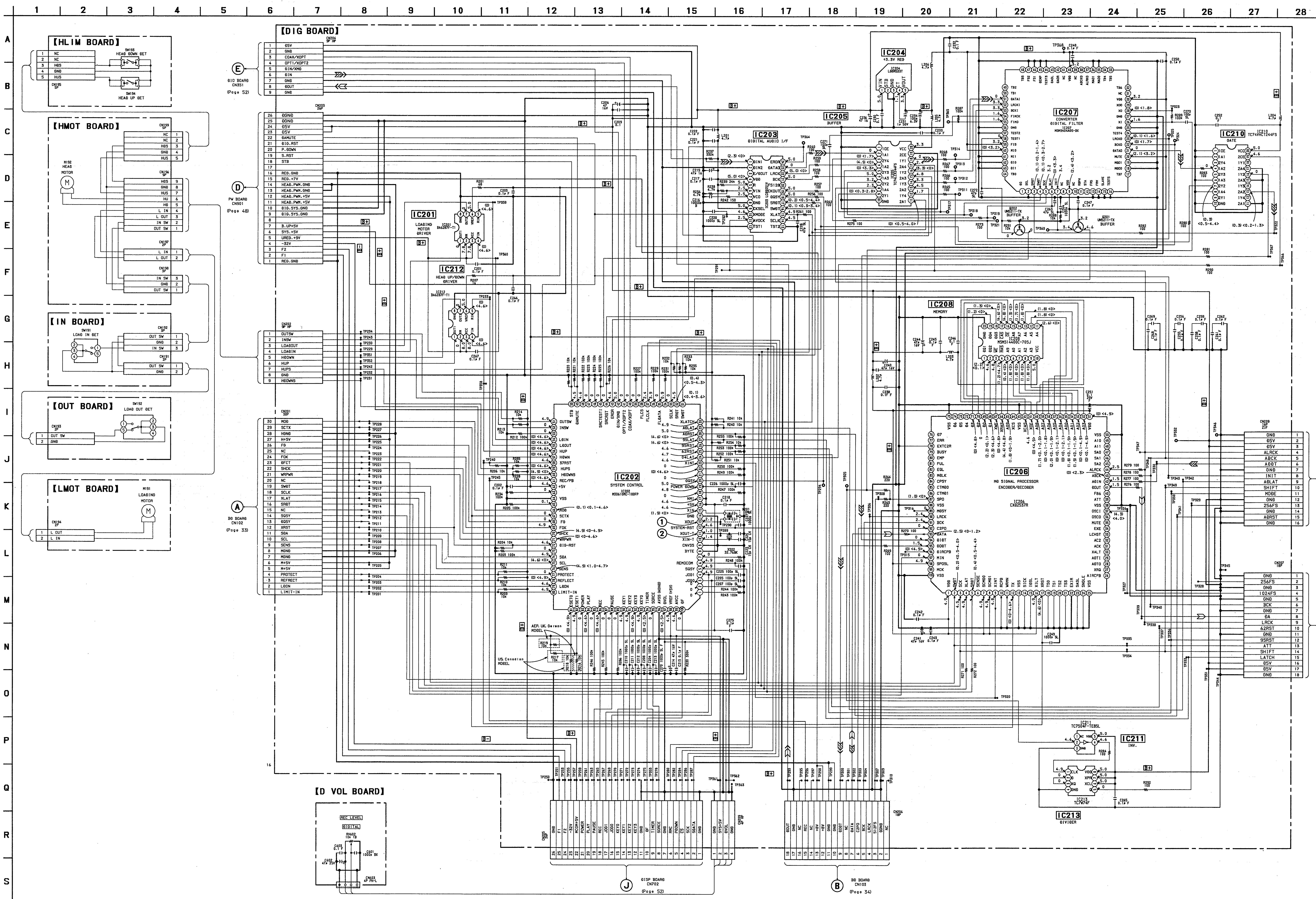
Note:

- All capacitors are in μF unless otherwise noted. pF: μμF 50WV or less are not indicated except for electrolytics and tantalums.
- All resistors are in Ω and 1/4W or less unless otherwise specified.

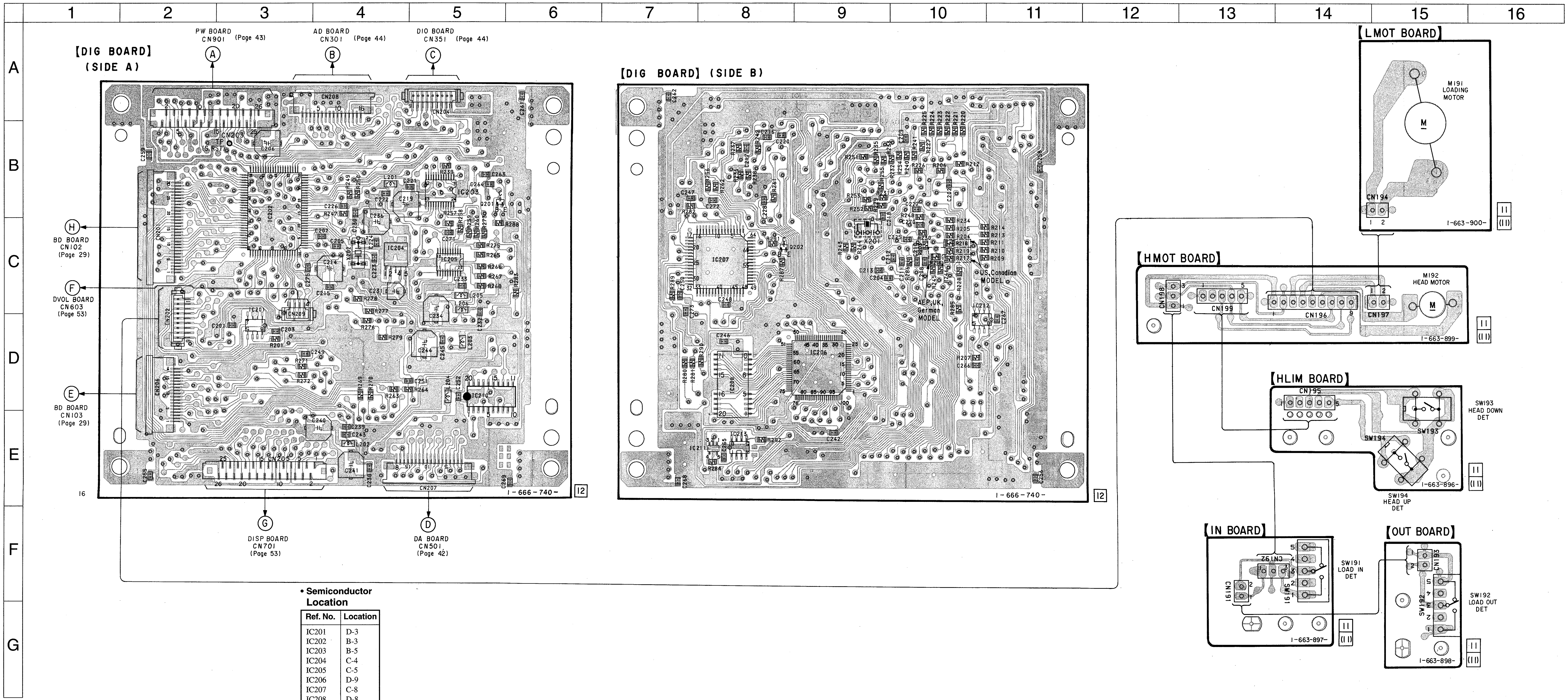
The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety. Replace only with part number specified.
Les composants identifiés par une marque ⚠ sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

- [B+] : B+ Line.
- [ ] : adjustment for repair.
- no mark : PB, REC
- ( ) : PB
- < > : REC
- Voltages and waveforms are dc with respect to ground under no-signal (detuned) conditions.
- Voltages are taken with a VOM (Input impedance 10MΩ). Voltage variations may be noted due to normal production tolerances.
- Waveforms are taken with a oscilloscope. Voltage variations may be noted due to normal production tolerances.
- Circled numbers refer to waveforms.
- Signal path
  - ▷ : PB
  - ▷▷ : PB (Digital output)
  - ▶ : REC
  - ▶▶ : REC (Digital input)

6-8. SCHEMATIC DIAGRAM — DIGITAL SECTION —



6-9. PRINTED WIRING BOARD — DIGITAL SECTION —



• **Semiconductor Location**

Ref. No.	Location
IC201	D-3
IC202	B-3
IC203	B-5
IC204	C-4
IC205	C-5
IC206	D-9
IC207	C-8
IC208	D-8
IC210	D-5
IC211	E-8
IC212	D-10
IC213	E-8
Q201	B-5
Q202	C-8

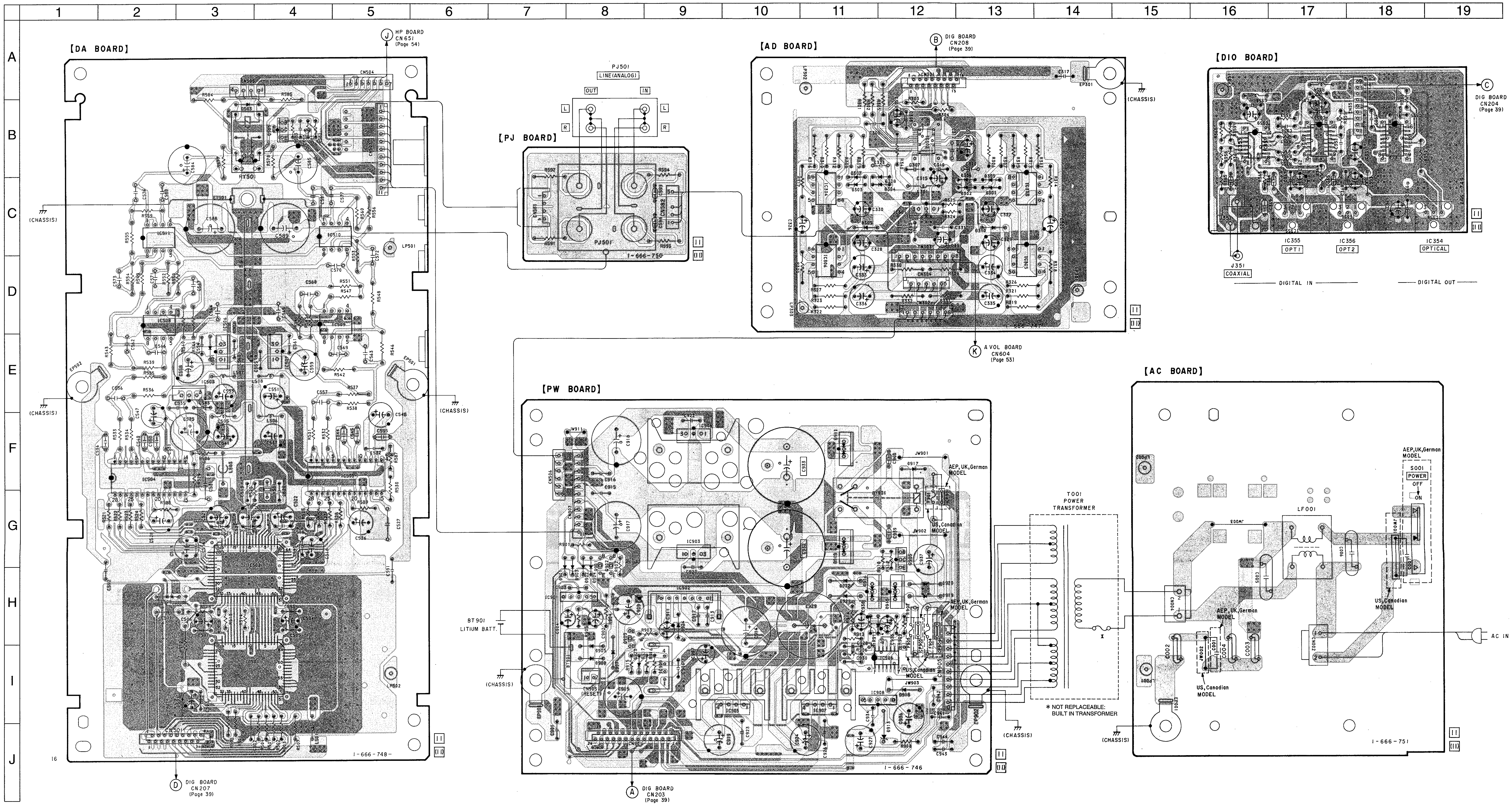
Note:
- ○—— : Parts extracted from the component side.
- ▭ : Pattern on the side which is seen.
- ○ : Through hole.

6-10. PRINTED WIRING BOARD — AUDIO SECTION —

• Refer to page 48 for PW BOARD and AC BOARD Schematic Diagrams.

• **Semiconductor Location**

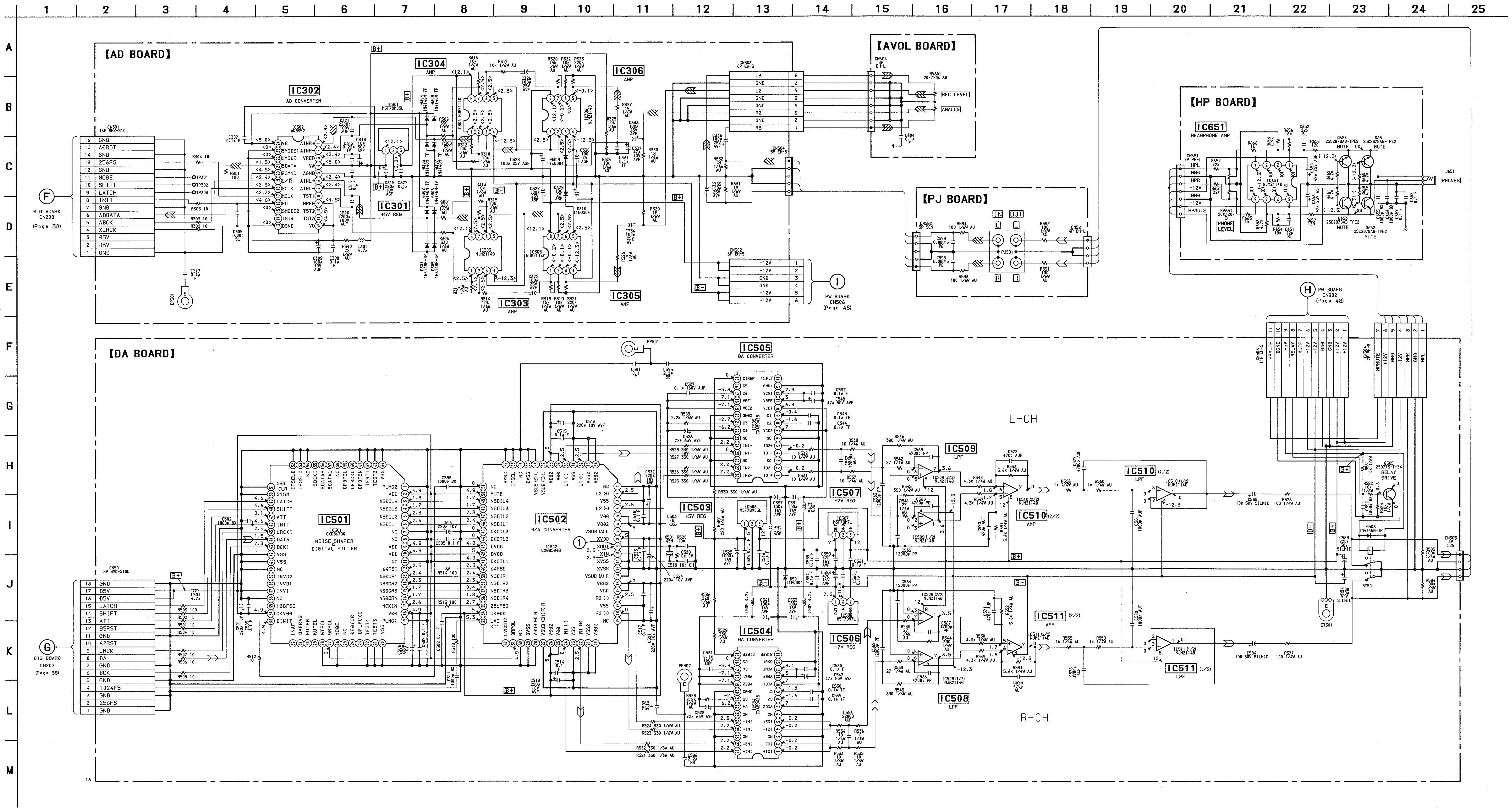
Ref. No.	Location	Ref. No.	Location
D301	C-13	IC303	C-14
D302	C-13	IC304	C-11
D303	C-11	IC305	D-14
D304	C-12	IC306	D-11
D305	C-13	IC351	B-19
D306	C-13	IC352	B-18
D307	C-11	IC353	B-17
D308	C-12	IC354	C-19
D309	C-12	IC355	C-17
D310	C-13	IC356	C-18
D501	E-3	IC501	I-4
D503	B-3	IC502	H-4
D901	H-8	IC503	E-3
D902	H-8	IC504	F-2
D903	H-8	IC505	F-5
D904	H-8	IC506	E-3
D905	I-8	IC507	E-4
D907	I-8	IC508	D-2
D908	I-8	IC509	D-5
D909	G-11	IC510	C-5
D911	F-11	IC511	C-2
D913	J-12	IC901	H-8
D914	H-12	IC902	H-9
D915	H-12	IC903	G-9
D916	H-12	IC904	F-9
D917	E-10	IC905	I-10
D918	I-12	IC906	I-12
D919	H-12	IC907	I-11
D920	H-12	IC908	I-12
D921	H-11	IC909	I-9
D922	H-11		
D923	I-9	Q505	B-4
D924	H-9	Q901	H-8
		Q902	H-8
IC301	C-12	Q903	I-9
IC302	B-12	Q905	H-12



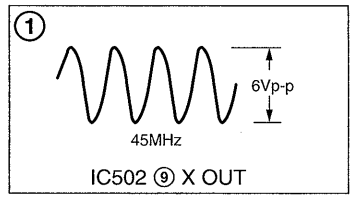
Note:

- ○—— : Parts extracted from the component side.
- ▭ : Pattern on the side which is seen.
- ○ : Through hole.
- ▭ : Pattern of the rear side.

6-11. SCHEMATIC DIAGRAM — AUDIO SECTION —



• Waveform

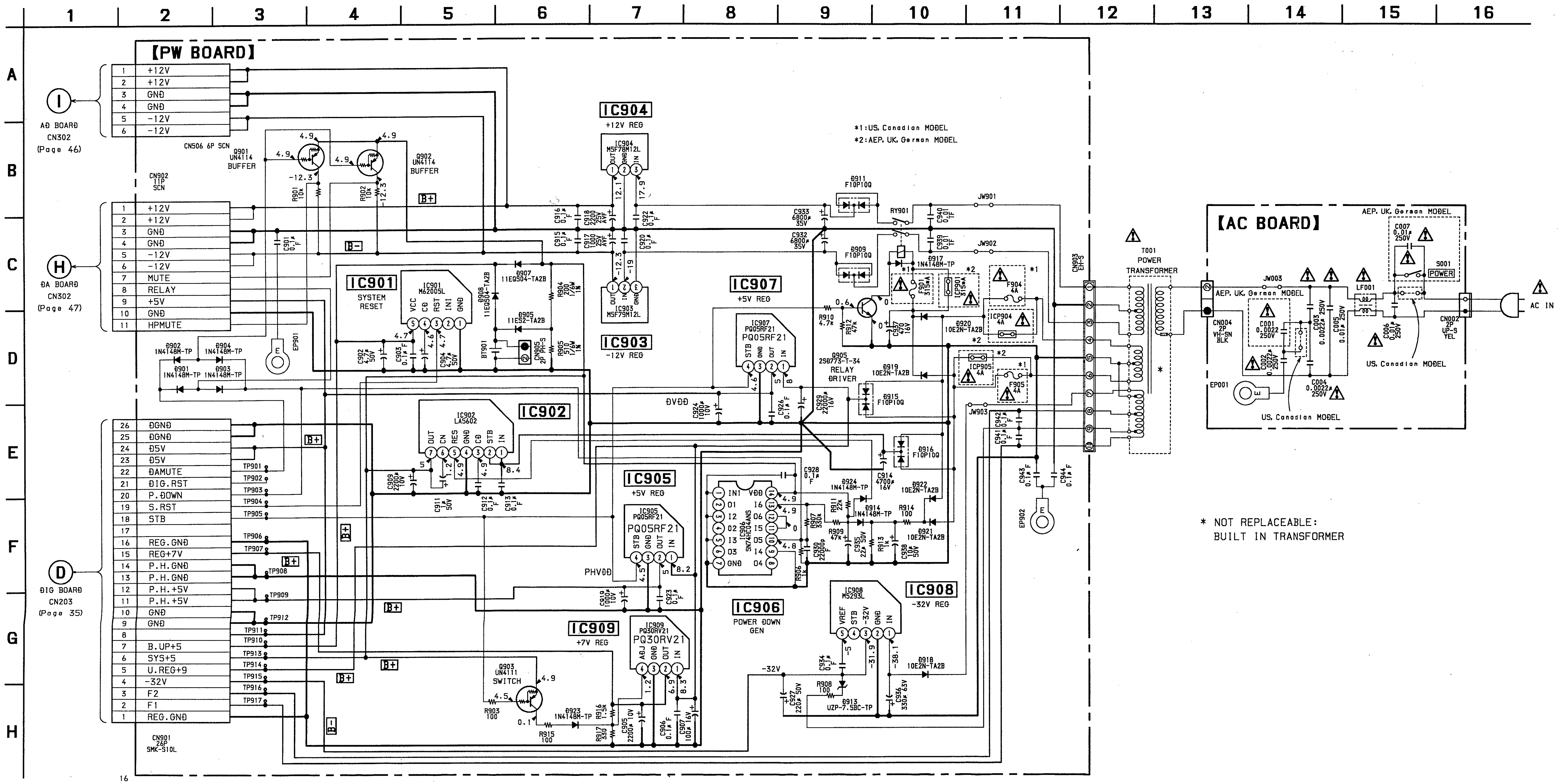


Note:

- All capacitors are in µF unless otherwise noted. pF: µµF 50WV or less are not indicated except for electrolytics and tantalums.
- All resistors are in Ω and 1/4W or less unless otherwise specified.
- [B+] : B+ Line.
- no mark : PB, REC
- ( ) : PB
- < > : REC
- Voltages and waveforms are dc with respect to ground under no-signal (detuned) conditions.
- Voltages are taken with a VOM (Input impedance 10MΩ). Voltage variations may be noted due to normal production tolerances.
- Waveforms are taken with a oscilloscope. Voltage variations may be noted due to normal production tolerances.
- Circled numbers refer to waveforms.
- Signal path
  - ⊳ : PB
  - ⊳⊳ : REC

6-12. SCHEMATIC DIAGRAM — POWER SECTION —

• Refer to page 42 for Printed Wiring Board



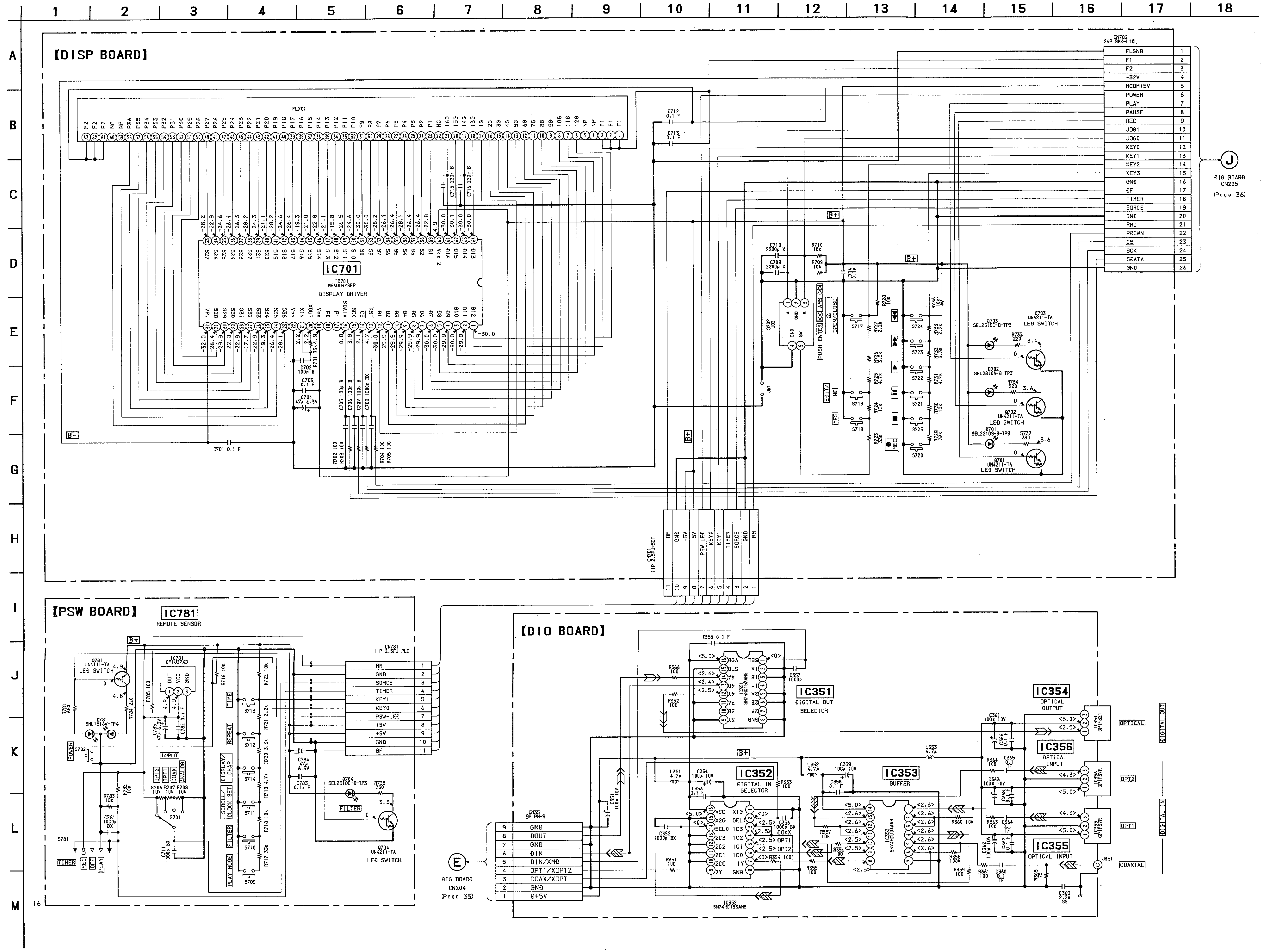
Note:

- All capacitors are in μF unless otherwise noted. pF: μμF 50WV or less are not indicated except for electrolytics and tantalums.
- All resistors are in Ω and 1/4W or less unless otherwise specified.

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety. Replace only with part number specified.
Les composants identifiés par une marque ⚠ sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

- B+ : B+ Line.
- B– : B– Line.
- no mark : PB, REC
- ( ) : PB
- < > : REC
- Voltages is dc with respect to ground under no-signal (detuned) conditions.
- Voltages are taken with a VOM (Input impedance 10MΩ). Voltage variations may be noted due to normal production tolerances.

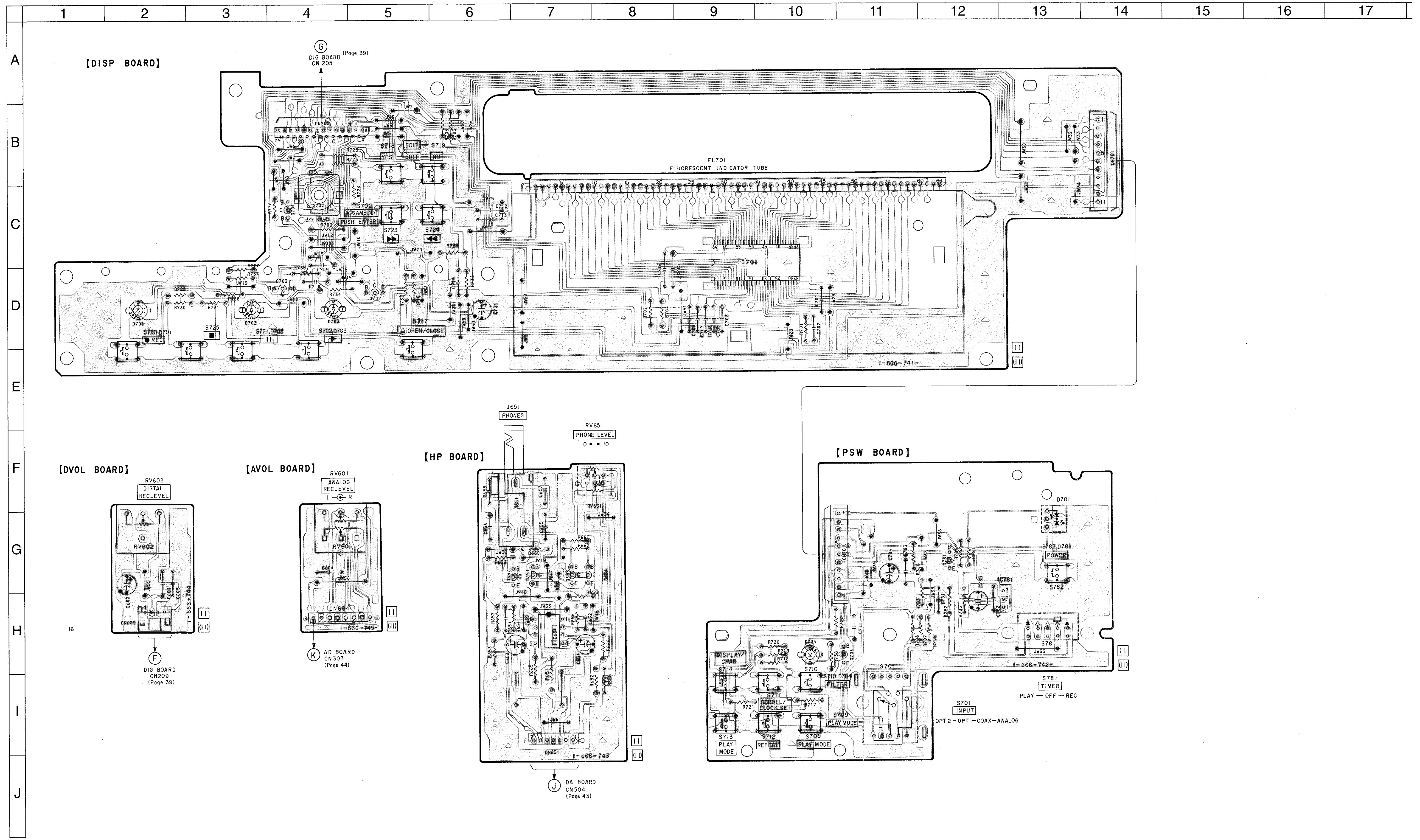
6-13. SCHEMATIC DIAGRAM — PANEL SECTION —



6-14. PRINTED WIRING BOARD — PANEL SECTION —

• Semiconductor Location

Ref. No.	Location
D701	D-2
D702	D-3
D703	D-4
D704	H-10
D781	G-13
IC651	H-7
IC701	C-9
IC781	H-13
Q651	G-7
Q652	G-7
Q653	G-7
Q654	G-7
Q701	C-4
Q702	D-5
Q703	D-4
Q704	H-11
Q781	G-12

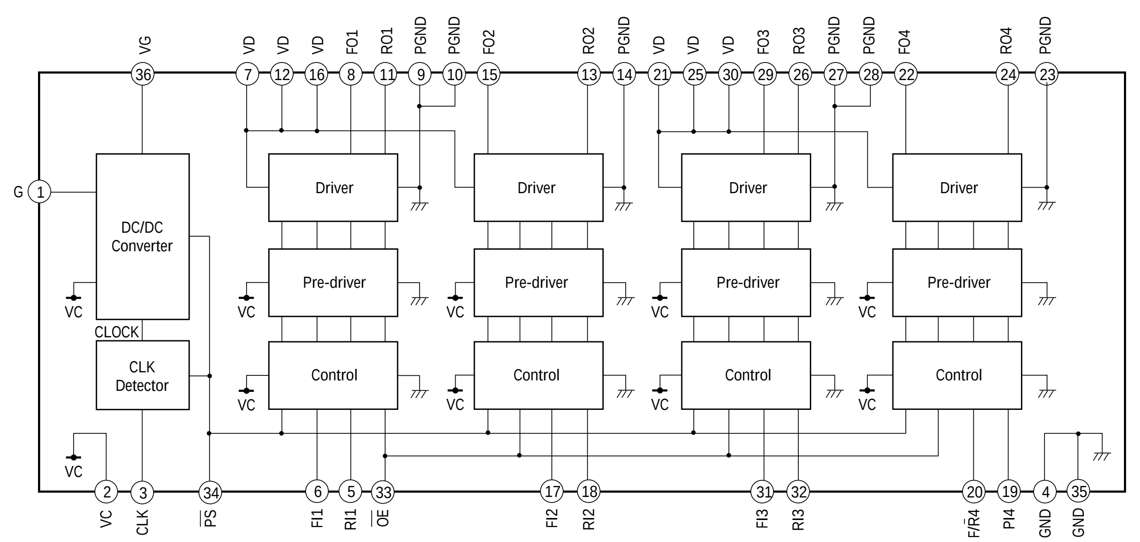


Note:
- All capacitors are in μF unless otherwise noted. pF: μμF 50WV or less are not indicated except for electrolytics and tantalums.
- All resistors are in Ω and 1/4W or less unless otherwise specified.
- [B+] : B+ Line.
- no mark : PB, REC
- ( ) : PB
- < > : REC
- Voltages is dc with respect to ground under no-signal (detuned) conditions.
- Voltages are taken with a VOM (Input impedance 10MΩ). Voltage variations may be noted due to normal production tolerances.
- Signal path
  - ⋙ : PB (Digital output)
  - ⋙ : REC (Digital input)

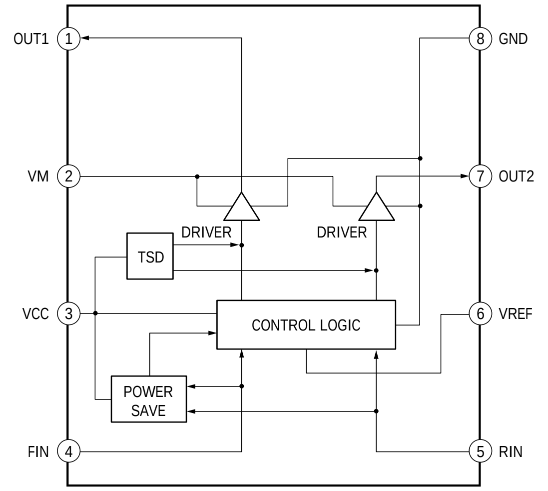
Note:
- ○—— : Parts extracted from the component side.
- ▭ : Pattern on the side which is seen.

6-15. IC BLOCK DIAGRAMS

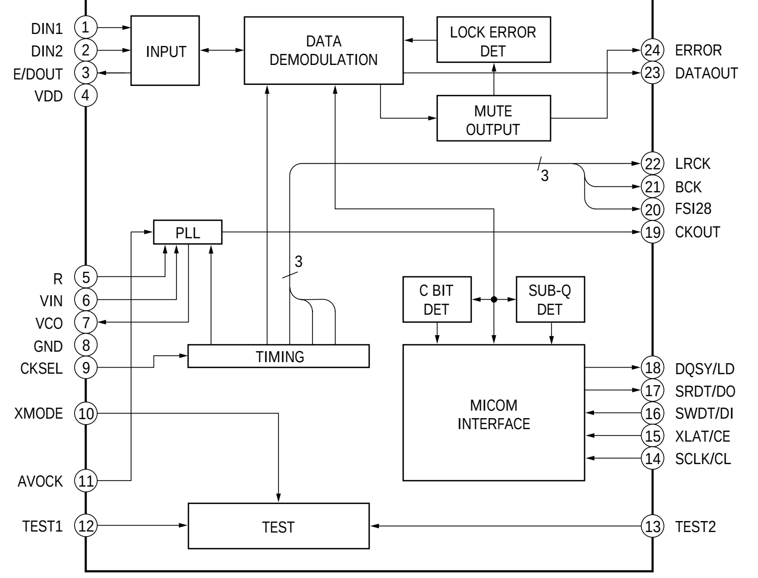
IC151 MPC17A38VMEL



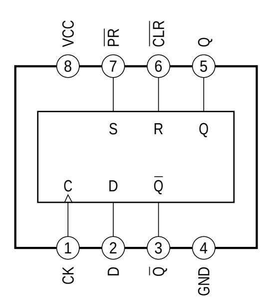
IC201, 212 BA6287F



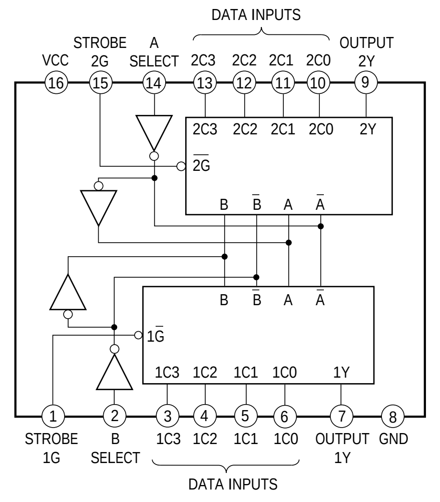
IC203 LC89051V-TLM



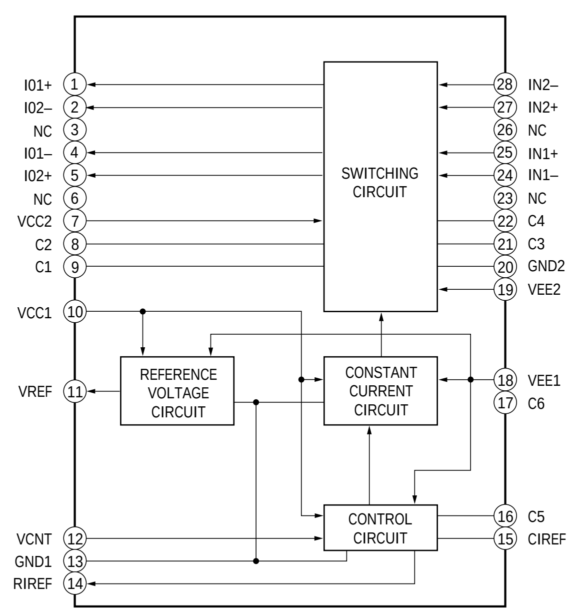
IC213 TC7W74F



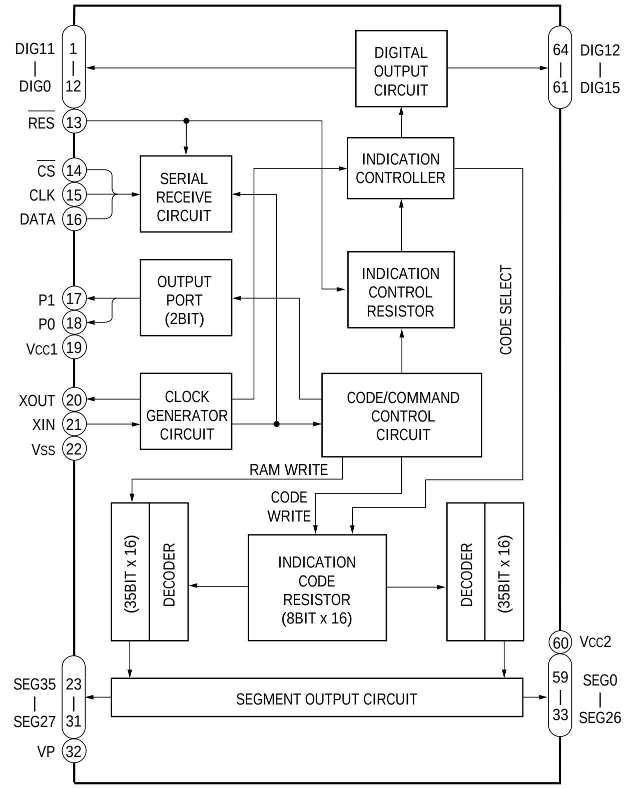
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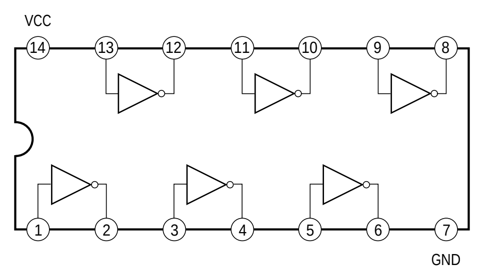
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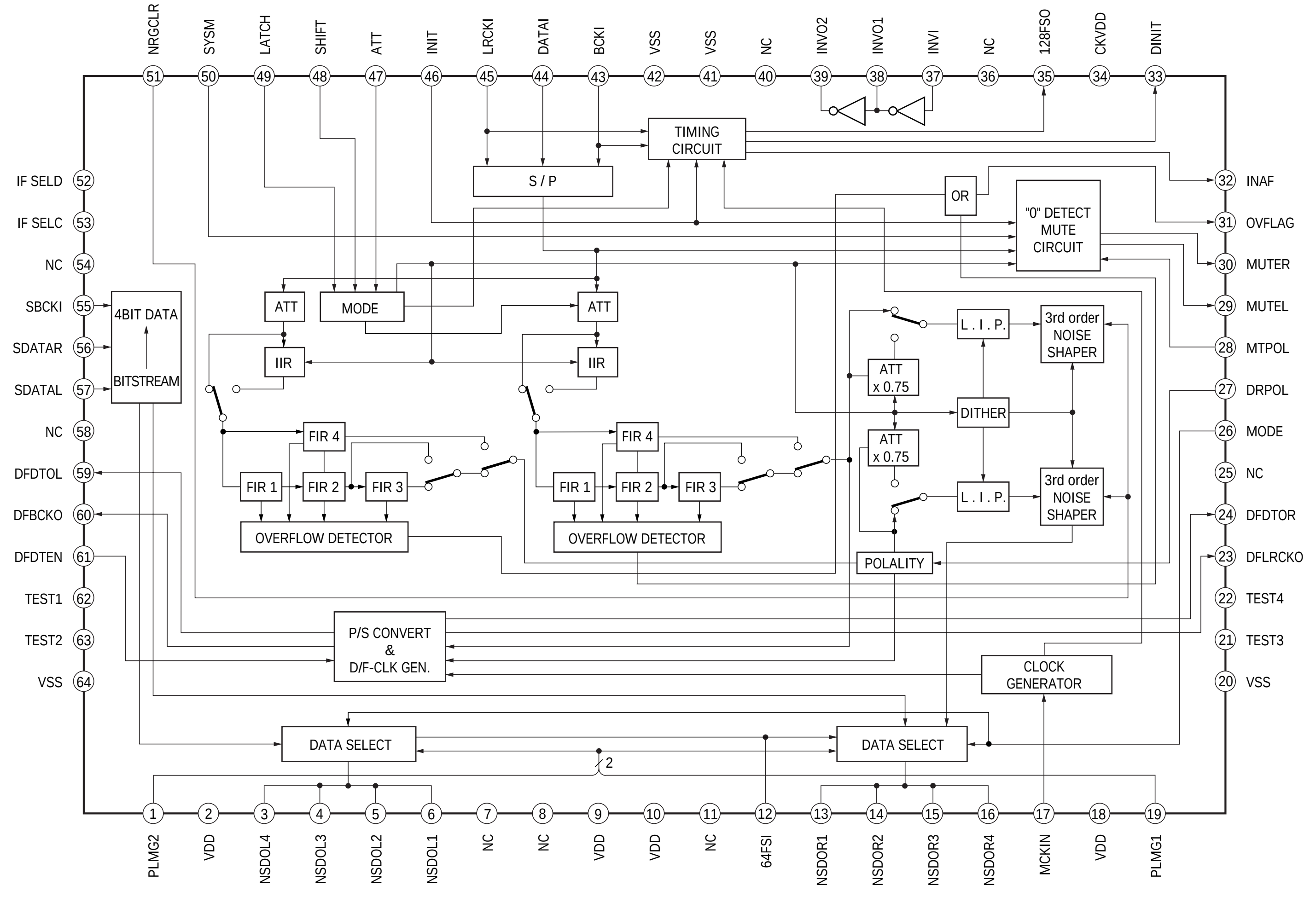
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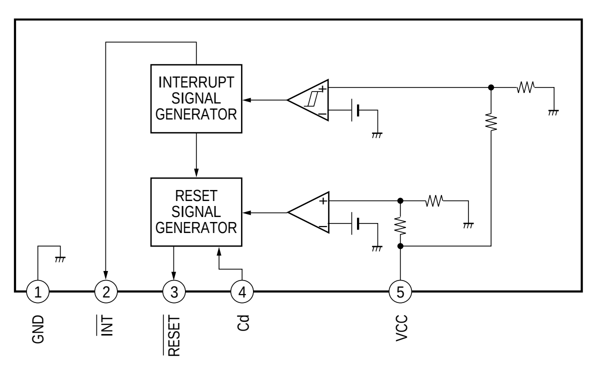
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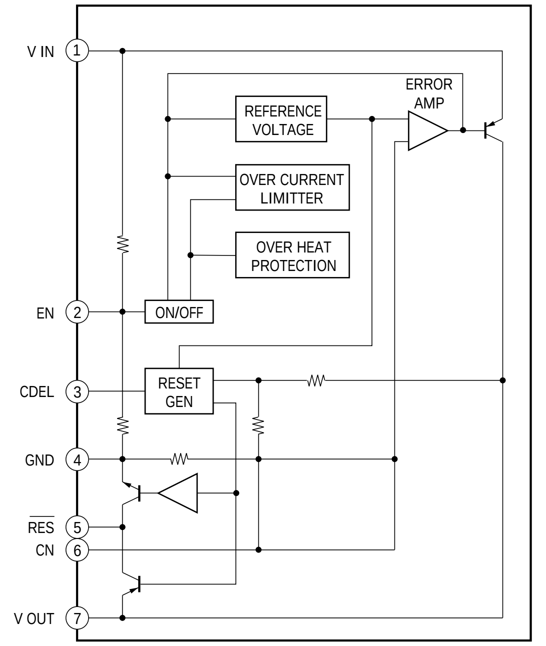
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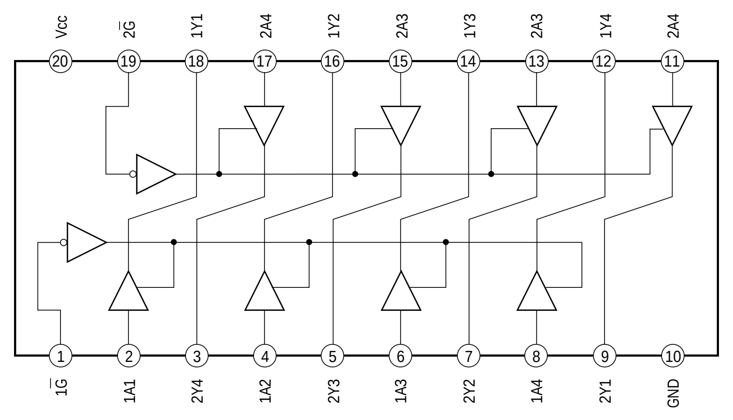
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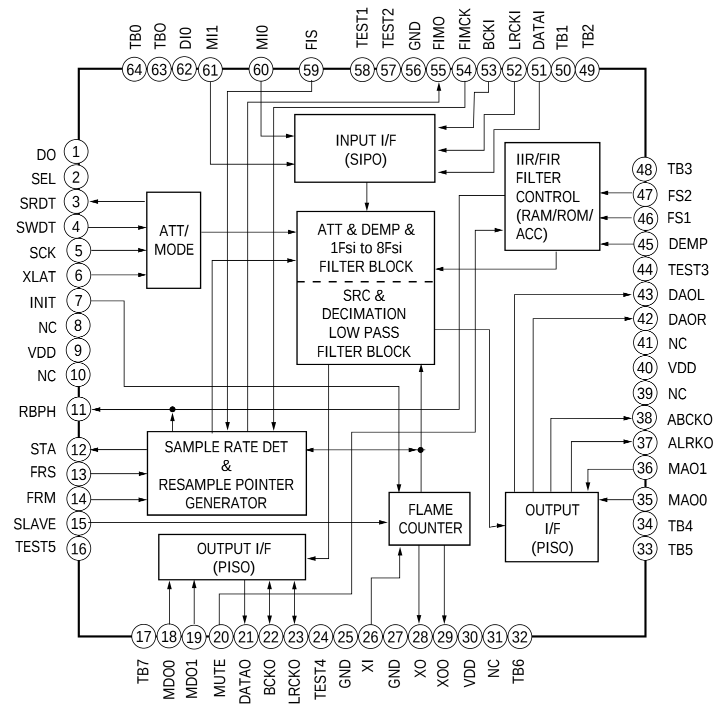
IC902 LA5602



IC205 TC74LCX244FS (EL)
IC210 TC74VHCT244F (EL)



IC707 MDM9404AGS-BK



6-21. IC PIN FUNCTIONS

• IC101 RF Amplifier (CXA1981AR)/BD board

Pin No.	Pin Name	I/O	Description
1	VC	O	Middle point voltage (+2.5V) generation output
2 to 7	A to F	I	Input of signal from optical pick-up detector
8	FI	I	F operation amplifier input
9	FO	O	F operation amplifier output
10	PD	I	Front monitor Connected to photo diode
11	APCREF	I	Input for setting laser power
12	TEMPI	I	Temperature sensor connection pin
13	GND	—	Ground
14	AAPC	O	APC LD amplifier output
15	DAPC	O	Digital APC output (Not used)
16	TEMPR	O	Temperature sensor reference voltage output
17	XRST	I	Input of reset signal from system controller Reset: "L"
18	SWDT	I	Input of write data signal from system controller
19	SCLK	I	Input of clock signal from system controller
20	XLAT	I	Input of latch signal from system controller
21	VREF	O	Reference voltage output (Not used)
22	TENV	O	Tracking envelop signal output (Not used)
23	THLD	I	Track hold capacitor connection pin
24	VCC	—	Power supply (+5V)
25	TFIL	I	Track hold input (Connected to VC)
26	TE	O	Output of tracking error signal to CXD2535CR
27	TLB	I	Input of add signal to tracking error
28	CSLED	I	Sled error LPF pin
29	SE	O	Output of sled error signal to CXD2535CR
30	ADFM	O	ADIP FM signal output
31	ADIN	I	Inputs ADIP FM signal by AC coupling
32	ADAGC	I	Connection pin of external capacitor for ADIP AGC
33	ADFG	O	Output of ADIP dual FM signal to CXD2535CR (22.05 kHz±1 kHz)
34	AUX	O	Output of auxiliary signal to CXD2535CR
35	FE	O	Output of focus error signal to CXD2535CR
36	FLB	I	Focus bias control input (Not used)
37	ABCD	O	Output of light amount signal to CXD2535CR
38	BOTM	O	Output of bottom hold signal of light amount signal to CXD2535CR
39	PEAK	O	Output of peak hold signal of light amount signal to CXD2535CR
40	RFAGC	I	Connection pin of RF AGC circuit external capacitor
41	RF	O	Output of playback EFM RF signal to CXD2535CR
42	ISET	I	Internal circuit constant setting pin 22 kHz BPF center frequency (Fixed at "H")
43	AGCT	I	Inputs RF signal by AC coupling
44	RFO	O	Output pin of RF signal
45	MORFI	I	Inputs MO RF signal by AC coupling
46	MORFO	O	Output pin of MO RF signal
47, 48	I, J	I	Input of signal from optical pick-up detector

• **IC121 Digital Signal Processor, Digital Servo Processor, EFM/ACIRC Encoder/Decoder (CXD2535CR)/BD board**

Pin No.	Pin Name	I/O	Description
1	FS256	O	11.2896 MHz clock output (MCLK) (Not used)
2	FOK	O	Output of FOK signal to system controller Outputs “H” when focus is set
3	DFCT	O	Outputs defect ON/OFF switching signal to ATRAC encoder/decoder
4	SHCK	O	Outputs track jump detection signal to system controller
5	SHCKEN	I	Track jump detection enable input (Not used) (Fixed at “H”)
6	WRPWR	I	Inputs laser power switching signal from system controller
7	DIRC	I	Disc drive recording/playback switching signal input (Fixed at “H”)
8	SWDT	I	Inputs write data signal from system controller
9	SCLK	I	Inputs serial clock signal from system controller
10	XLAT	I	Inputs serial latch signal from system controller
11	SRDT	O	Outputs read data signal to system controller
12	SENS	O (3)	Outputs internal status (SENSE) to system controller
13	ADSY	O	ADIP sync signal output (Not used)
14	SQSY	O	Output subcode Q sync (SCOR) to system controller Outputs “L” every 13.3 msec Outputs “H” at all most mostly
15	DQSY	O	Outputs digital-in U-bit CD format subcode Q sync (SCOR) to system controller Outputs “L” every 13.3 msec Outputs “H” at all most mostly
16	XRST	I	Inputs reset signal from system controller Reset: “L”
17	TEST4	I	Test input (Fixed at “L”)
18	CLVSCK	O	Not used
19	TEST5	I	Test input (Fixed at “L”)
20	DOUT	O	Digital audio signal output (For optical output)
21	DIN	I	Digital audio signal input (For optical input) (Not used)
22	FMCK	O	ADIP FM demodulation clock signal output
23	ADER	O	ADIP CRC flag output “H”:Error
24	REC	I	Input of recording/playback switching signal from system controller Recording: “H” Playback: “L”
25	DVSS	—	Ground (Digital)
26	DOVF	I	Digital audio output validity flag input (Fixed at “L”)
27	DODT	I	Input of 16bit data for digital audio output
28	DIDT	O	Output of 16bit data for digital audio input to ATRAC encoder/decoder
29	DTI	I	Input of recording audio data signal from ATRAC encoder/decoder
30	DTO	O (3)	Output of playback audio data signal to ATRAC encoder/decoder
31	C2PO	O	Outputs C2PO signal to ATRAC encoder/decoder (Output indicating data error status) Playback: C2PO (“H”) Digital recording: Digital-in-Vflag Analog recording: “L”
32	BCK	O	Outputs bit clock signal (2.8224 MHz) (MCLK)
33	LRCK	O	Outputs L/R clock signal (44.1 kHz) (MCLK)
34	XTAO	O	System clock (512 fs=22.5792 MHz) signal output
35	XTAI	I	Input of system clock (512fs=22.5792 MHz) signal input
36	MCLK	O	MCLK clock (22.5792 MHz) signal output (Not used)
37	XBCK	O	Pin 32 (BCK) inversion output (Not used)
38	DVDD	—	Power supply (+5V) (Digital)
39	WDCK	O	WDCK clock (88.2 kHz) signal output (MCLK)
40	RFCK	O	RFCK clock (7.35 kHz) signal output (MCLK)

* (3) of I/O is 3-state output, (A) is analog output.

Pin No.	Pin Name	I/O	Description
41	WFCK	O	WFCK clock (7.35 kHz) signal output (Playback: EFM decoder PLL Recording: EFM encoder PLL)
42	GTOP	O	“H”: Opens playback EFM frame sync protection window
43	GFS	O	“H”: Playback EFM sync and interpolation protection timing match
44	XPLCK	O	EFM decoder PLL clock output (98 fs=4.3218 MHz) Falling edge and EFM signal edge match
45	EFMO	O	EFM signal output (Recording)
46	RAOF	O	Internal RAM overflow detection signal output (decoder monitor output) Outputs “H” when the disc rotation exceeds ±4F jitter margin during playback
47	MVCI	I	Digital-in PLL oscillation input (Not used) (Fixed at “L”)
48	TEST2	I	Test pin (Fixed at “L”)
49	DIPD	O (3)	Digital-in PLL phase comparison output Internal VCO: (Frequency: Low n “H”) External VCO: (Frequency: Low n “L”)
50	DVSS	—	Ground (Digital)
51	DICV	I (A)	Digital-in PLL internal VCO control voltage input
52	DIFI	I (A)	Filter input when digital-in PLL internal VCO is used
53	DIFO	O (A)	Filter output when digital-in PLL internal VCO is used (Not used)
54	AVDD	—	Power supply (+5V) (Analog)
55	ASYO	O	Playback EFM full-swing output (L=VSS, H=VDD)
56	ASYI	I (A)	Playback EFM asymmetry comparate voltage input
57	BIAS	I (A)	Playback EFM asymmetry circuit constant current input
58	RFI	I (A)	Inputs playback EFM RF signal from RF amplifier
59	AVSS	—	Ground (Analog)
60	CLTV	I (A)	Decoder PLL master clock PLL VCO control voltage input
61	PCO	O (3)	Decoder PLL master clock PLL phase comparison output
62	FILI	I (A)	Decoder PLL master clock PLL filter input
63	FILO	O (3)	Decoder PLL master clock PLL filter output
64	PEAK	I (A)	Inputs peak hold signal for light amount signal from RF amplifier
65	BOTM	I (A)	Inputs bottom hold signal for light amount signal from RF amplifier
66	ABCD	I (A)	Light amount signal from RF amplifier
67	FE	I (A)	Input of focus error signal from RF amplifier
68	AUX1	I (A)	Input of auxiliary signal from RF amplifier
69	VC	I (A)	Input of middle point voltage (+2.5V) from RF amplifier
70	ADIO	O (A)	A/D converter input signal monitor output
71	TEST3	I (A)	Test input (Fixed at “L”)
72	AVDD	—	Power supply (+5V) (Analog)
73	ADRT	I (A)	A/D converter operation range upper limit voltage input (Fixed at “H”)
74	ADRB	I (A)	A/D converter operation range lower limit voltage input (Fixed at “L”)
75	AVSS	—	Ground (Analog)
76	SE	I (A)	Input of sled error signal from RF amplifier
77	TE	I (A)	Input of tracking error signal from RF amplifier
78	AUX2	I (A)	Auxiliary input pin 2 (Fixed at “L”)
79	DCHG	I (A)	Connected to ground
80	APC	I (A)	Laser APC input (Fixed at “L”)

- Abbreviation
  EFM : Eight to Fourteen Modulation
  PLL : Phase Locked Loop

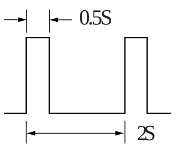
* (3) of I/O is 3-state output, (A) is analog output.

Pin No.	Pin Name	I/O	Description
81	TEST1	I	Test pin (Fixed at “L”)
82	ADFG	I	Input of ADIP dual FM signal from RF amplifier (22.05 kHz ±1 kHz) (TTL Schmidt input)
83	TS25	I	Test pin (Fixed at “L”)
84	LDDR	O	Laser APC signal output
85	TRDR	O	Tracking servo drive signal output (–)
86	TFDR	O	Tracking servo drive signal output (+)
87	FFDR	O	Focus servo drive signal output (+)
88	DVDD	—	Power supply (+5V) (Digital)
89	FRDR	O	Focus servo drive signal output (–)
90	FS4	O	176.4 kHz clock signal output (MCLK) (Not used)
91	SRDR	O	Sled servo drive signal output (–)
92	SFDR	O	Sled servo drive signal output (+)
93	SPRD	O	Spindle servo drive signal output (–)
94	SPFD	O	Spindle servo drive signal output (+)
95	DCLO	O	Not used normally
96	DCLI	I	Not used normally (Fixed at “H”)
97	XDCL	O	Not used normally
98	OFTRK	O	Off track signal output (Not used)
99	COUT	O	Traverse count signal output (Not used)
100	DVSS	—	Ground (Digital)

• IC202 System Controller (M30610EC-1086CFP)/DIG board

Pin No.	Pin Name	I/O	Description
1, 2	—	—	AMS jog signal input
3	JOG0	I	ATP address sync or sub code Q sync (SCOR) input from CXD2535CR
4	JOG1	I	
5	SQSY	I	"L" is input every 13.3 msec Mainly "H" Remote control signal interruption input
6	REMOCON	I	Not used
7	—	—	Data bus switching signal input "L":Single chip mode (Fixed at "L")
8	BYTE	I	Ground
9	CNVSS	—	Sub clock input (37.768 kHz)
10	XIN-T	I	Sub clock output (32.768 kHz)
11	XOUT-T	O	System reset input "L":Reset
12	SYSTEM-RST	I	Main clock output (10 MHz)
13	XOUT	O	Ground
14	GND	—	Main clock input (10 MHz)
15	XIN	I	Power supply (+5V)
16	+5V	—	Not used
17	MNI	I	
18	—	—	Power down detection signal input "L":Power down
19	POWER DOWN	I	Digital-in U-bit CD format sub code Q sync (SCOR) input from CXD2535CR
20	DQSY	I	"L" is input every 13.3 msec Mainly "H"
21, 22	—	—	Not used
23	XINT	I	Interruption status input from ATRAC encoder/decoder
24	04LAT	O	Data read signal output to sampling rate converter, digital filter "L":Active
25	62RST	O	Reset signal output to D/A converter "L":Reset
26	95RST	O	Reset signal output to CXD8595Q "L":Reset
27	95LAT	O	Transmission data latch signal output to CXD8595Q
28	ADRST	O	Reset signal output to A/D converter "H":Reset
29	ADLAT	O	Latch signal output to A/D converter
30	XLATCH	O	Serial data latch signal output
31	SWDT	O	Write data signal input to serial bus
32	SRDT	I	Read data signal input from serial bus
33	SCLK	O	Clock signal output to serial bus
34	—	—	Not used
35	FLDATA	O	Transmission data clock output to FL driver
36	—	—	Not used
37	FLCLK	O	Transmission data clock output to FL driver
38	FLCS	O	Transmission data chip select output to FL driver
39	—	—	Not used
40	COAX/XOPT	O	Digital-in select signal output "L":Optical input, "H":Coaxial input
41	OPT1/XOPT2	O	Digital-in select signal output "L":OPT2, "H":OPT1
42	DIN/XMD	O	Digital-out select signal output "L":MD, "H":Digital in through
43	EROR	I	Digital-in error signal input
44	SRCRST	O	Reset signal output to sampling rate converter, digital filter "L":Reset

• Abbreviation
FL : Fluorescent indicator tube

Pin No.	Pin Name	I/O	Description
45	SRC TEST	O	The second reset signal output from sampling rate converter
46 to 48	—	—	Not used
49	DAMUTE	O	D/A line mute output "L":Active
50	STB	O	Strobe signal output to power supply circuit When power is ON:"H", When standby:"L"
51	OUTSW	I	Detection input from loading out detection switch
52	INSW	I	Detection input from loading in detection switch
53	—	—	Not used
54	LDIN	O	Loading motor control output
55	LDOUT	O	
56	HUP	O	Magnetic head up/down control output
57	HDWN	O	
58	37RST	O	Reset signal output to ATRAC encoder/decoder "L":Reset
59	HUPS	I	Detection input from magnetic head up detection switch
60	HDOWNS	I	Detection input from magnetic head down detection switch
61	REC/PB	O	Recording/playback selection signal output to CXD2535CR When recording:"H", when playing back:"L"
62	VCC	—	Power supply (+5V)
63	—	—	Not used
64	VSS	—	Ground
65	—	—	Not used
66	MOD	O	Laser modulation switching signal output During playback power: "L", During stop:"H" During recording power: 
67	SCTX	O	Write data transmission timing output to ATRAC encoder/decoder Used also as magnetic head ON/OFF output
68	FG	I	FG detection signal output from spindle motor driver
69	FOK	I	FOK signal input from CXD2535CR "H" is input when focus is set
70	SHCK	I	Track jump detection signal input from CXD2535CR
71	WRPWR	O	Laser power switching signal output to optical pick-up and CXD2535CR
72	DIG-RST	O	Digital reset signal output
73	—	—	Not used
74	SDA	I/O	Input/output of data signal with EEPROM
75	SCL	O	Clock signal output to EEPROM
76	SENS	I	Internal status (SENSE) input from CXD2535CR
77	PROTECT	I	Recording prevention tab detection input from protect detection switch When protect is ON:"H"
78	REFLECT	I	Disc reflection rate detection input from reflect detection switch When low reflection rate disc is used:"H"
79	LDON	O	Laser ON/OFF control output "H":Laser ON
80	LIMIT-IN	I	Detection input from limit-in switch When sled limit in:"L"

Pin No.	Pin Name	I/O	Description
81	CSET0	I	Destination setting pin
82	CSET1	I	
83	POWER	O	POWER LED drive output
84	PLAY	O	PLAY (►) LED drive output
85	—	—	Not used
86	REC	O	REC (●) LED drive output
87	—	—	Not used
88	PAUSE	O	PAUSE (❚❚) LED drive output
89	—	—	Not used
90	KEY1	I	Key input (A/D)
91	KEY2	I	
92	KEY3	I	
93	KEY0	I	
94	TIMER	I	Timer recording/playback/OFF switching input "L":Playback, "H":Recording, "M":OFF
95	SORCE	I	Input signal (analog/digital input) selection signal input
96	AVSS(AGND)	—	Analog ground
97	DVOL	I	Digital input level volume input (A/D)
98	VREF(+5V)	I	A/D reference voltage input (+5V)
99	AVCC	—	Analog power supply (+5V)
100	DF	O	FILTER LED drive output

• IC203 Digital Audio Interface Receiver (LC89051V-TLM)/DIG board

Pin No.	Pin Name	I/O	Description
1	DIN1	I	Data input with built-in amplifier (responding to the coaxial optical module)
2	DIN2	I	Data input (responding to the optical module) (Not used)
3	E/DOUT	O	Emphasis, input bi-phase, validity flag output (Not used)
4	VDD	—	Power supply (+5V)
5	R	I	VCO gain control input
6	VIN	I	VCO freerunning frequency setting input
7	VCO	O	LPF setting of PLL
8	GND	—	Ground
9	CKSEL	I	System clock select input (384fs, 512fs) (Fixed at “H”)
10	XMODE	I	Reset input
11	AVOCK	I	Clock input for preventing PLL lock failure
12	TST1	I	Test input (Normally “L”)
13	TST2	I	
14	SCLK	I	Microcomputer IF clock input
15	XLAT	I	Microcomputer IF latch/chip enable input
16	SWDT	I	Microcomputer IF write data input
17	SRDT	O	Microcomputer IF read data output
18	DQSY	O	Microcomputer IF Sub-Q sync and ID sync output
19	CKOUT	O	VCO clock output (freerunning, 384fs, 512fs)
20	FS128	O	128fs clock output (Not used)
21	BCK	O	Bit clock output
22	LRCK	O	L/R clock output
23	DATAOUT	O	Audio data output
24	ERROR	O	PLL lock error mute output

• **IC206 Shock-Proof Memory Controller, ATRAC Encoder/Decoder (CXD2537R)/DIG board**

Pin No.	Pin Name	I/O	Description
1	VDD	—	Power supply (+5V)
2	SWDT	I	Input of write data signal from system controller
3	SCK	I	Input of serial clock signal from system controller
4	XLAT	I	Input of serial latch signal from system controller
5	SRDT	O/Z	Output of read data signal to system controller
6	SENSE	O/Z	Internal status (SENSE) output (Not used)
7	SCMD0	I	Serial command control mode input (Fixed at “H”)
8	SCMD1	I	
9	XINT	O	Interrupt status output
10	RCPB	I	Recording/playback switching input “L”: Recording mode (Fixed at “L”)
11	WRMN	I	Write/monitor mode switching signal input “H”: Monitor mode (Fixed at “L”)
12	TX	I	Write data transmission timing input Also used as magnetic field head ON/OFF output
13	VSS	—	Ground
14	SICK	I	Chip reservation pin (Fixed at “L”)
15	IDSL	I	
16	XILT	I	Chip reservation pin (Fixed at “H”)
17	XRST	I	Input of reset signal from system controller Reset: “L”
18 to 21	TS0 to TS3	I	Test pin (Fixed at “L”)
22	EXIR	I	Chip reservation pin (Fixed at “L”)
23	SASL	I	Block selection in single use “L”: ATRAC “H”: RAM controller (Fixed at “L”)
24	SNGLE	I	Normally fixed at “L” Fixed at “H” when used as ATRAC or RAM controller for single (Fixed at “L”)
25	VSS	—	Ground
26	AIRCPB	O	Output of ATRAC and external audio block recording/playback mode signal (Not used)
27	XRQ	O	ATRAC I/F data request signal output (Not used)
28	ADTO	I	ATRAC decode data signal input (Not used)
29	ADTI	O	ATRAC encode data signal output (Not used)
30	XALT	I	ATRAC I/F XALT signal input (Not used)
31	ACK	I	ATRAC I/F ACK signal input (Not used)
32	AC2	I	ATRAC I/F C2PO signal input (Not used)
33	LCHST	I/O	ATRAC I/F Lch start data signal input/output (Not used)
34	EXE	I/O	ATRAC I/F EXE signal input/output (Not used)
35	MUTE	I/O	ATRAC I/F MUTE signal input/output (Not used)
36	OSCO	O	Clock output (45 MHz) (Not used)
37	OSCI	I	Clock input (45 MHz)
38	VSS	—	Ground
39	ATT	I/O	ATRAC I/F ATT signal input/output (Not used)
40	F86	O	ATRAC block 11.6 msec timing signal output (Not used)
41	DOUT	O	Output of audio data signal to D/A converter
42	ADIN	I	Input of recording signal from A/D converter
43	ABCK	O	Bit clock signal output
44	ALRCK	O	L/R clock output
45 to 47	SA2 to SA0	O	Address signal output (Not used)

* O/Z: In case of no output data, it becomes high impedance

Pin No.	Pin Name	I/O	Description
48, 49	A11, A10	O	Address signal output (Not used)
50	VSS	—	Ground
51	VDD	—	Power supply (+5V)
52 to 55	A03 to A00	O	Address signal output
56 to 60	A04 to A08	O	Address signal output
61	XOE	O	Output enable control signal output
62	XCAS	O	Column address strobe signal output
63	VSS	—	Ground
64	XCS	O	Chip select signal output (Not used)
65	A09	O	Address signal output
66	XRAS	O	Row address strobe signal output
67	XWE	O	Read/write control signal output
68, 69	D1, D0	I/O	Data signal input/output
70 to 74	D2 to D6	I/O	
75	VSS	—	Ground
76	D7	I/O	Data signal input/output (Not used)
77	ERR	I/O	Input/output of error (C2PO) data to external RAM (Not used)
78	EXTC2R	I	External RAM selection input for error data writing (“H”: External RAM) (Fixed at “L”)
79	BUSY	O	RAM access BUSY signal output (Not used)
80	EMP	O	EMPTY or immediately before FULL of ATRAC data (When DSC=ASC+1: “H”) (Not used)
81	FUL	O	FULL or immediately before EMPTY of ATRAC data (When ASC=DSC+1: “H”) (Not used)
82	EQL	O	ATRAC data EMPTY (When DSC=ASC: “H”) (Not used)
83	MDLK	O	Indicates recording/playback data main/sub (“H”: Sub, Linking: “L”: Main) (Not used)
84	CPSY	O	Interpolation sync signal output (Not used)
85	CTMD0	O	DSC counter mode output (Not used)
86	CTMD1	O	
87	SPO	O	System clock (512fs=22.5792 MHz) signal output
88	VSS	—	Ground
89	MDSY	O	Main data sync detection signal output (Not used)
90	LRCK	I	L/R clock signal input (44.1 kHz)
91	BCK	I	Bit clock signal input (2.8224 MHz)
92	C2PO	I	C2PO signal input (Shows data error status) Playback:C2PO (“H”) Digital recording: D In-Vflag Analog recording: “L”
93	DATA	I/O	Recording: Recording audio data signal output Playback: Playback audio data signal input
94	DIDT	I	Input of digital audio input 16-bit data from CXD2535CR
95	DODT	O	Output of digital audio output 16-bit data to CXD2535CR
96	DIRCPB	O	Disc drive and EFM encoder/decoder recording/playback mode output (Not used)
97	MIN	I	External monitor signal input
98	SPOSL	I	Pin 87 (SPO) input/output switching input pin (“L”:IN “H”:OUT) (Not used) (Fixed at “H”)
99	MCK	O	RAM controller internal master clock output (Not used)
100	VSS	—	Ground

• **IC207 Sampling Rate Converter, Digital Filter (MSM9404AGS-BX)/DIG board**

Pin No.	Pin Name	I/O	Description
1	DO	O	Data output (Not used)
2	SEL	I	Data select control input “L”:DI0 n DO, “H”:DI1 n DO (Fixed at “L”)
3	SRDT	O	Serial data output
4	SWDT	I	Serial data input
5	SCK	I	Serial clock input
6	XLAT	I	Serial latch pulse input
7	INIT	I	Initialize input “L”:Reset
8	NC	—	Not used
9	VDD	—	Power supply (+3.3V)
10	NC	—	Not used
11	RBPH	O	Ring buffer R/W phase control monitor signal output “L”:Control OFF (Not used)
12	STA	O	Fs conversion rate measurement state monitor signal output “L”:High accuracy “H”:High speed response mode (Not used)
13	FRS	I	Input/output Fs rate measurement time selection input “L”:High accuracy “H”:High speed response mode (Fixed at “L”)
14	FRM	I	Input/output Fs rate measurement mode signal input “L”:Automatic, “H”:Manual (Fixed at “L”)
15	SLAVE	I	Output sync mode selection input “L”:Slave, “H”:Master (Fixed at “L”)
16	TEST5	I	Test pin (Fixed at “L”)
17	TB7	I/O	Test bus input/output (Open)
18	MDO0	I	Data output serial data format setting input (Fixed at “L”)
19	MDO1	I	
20	MUTE	I	Output mute setting input “L”:Muted (DATAO only)
21	DATAO	O	Data output (Fso output)
22	BCKO	I/O	Data output bit clock input/output
23	LRCKO	I/O	Data output Fso word clock input/output
24	TEST4	I	Test pin (Fixed at “L”)
25	GND	—	Ground
26	XI	I	512 Fso output line master clock input
27	GND	—	Ground
28	XO	O	Clock output
29	XOO	O	Output line master clock output (Not used)
30	VDD	—	Power supply (+3.3V)
31	NC	—	Not used
32 to 34	TB6 to TB4	I/O	Test bus input/output (Open)
35	MAO0	I	D/A output serial data format setting input (Fixed at “L”)
36	MAO1	I	
37	ALRKO	O	D/A output word clock output Data changes at “L”→“H” edge (Not used)
38	ABCKO	O	D/A output bit clock output Data changes at “L”→“H” edge (Not used)
39	NC	—	Not used
40	VDD	—	Power supply (+3.3V)

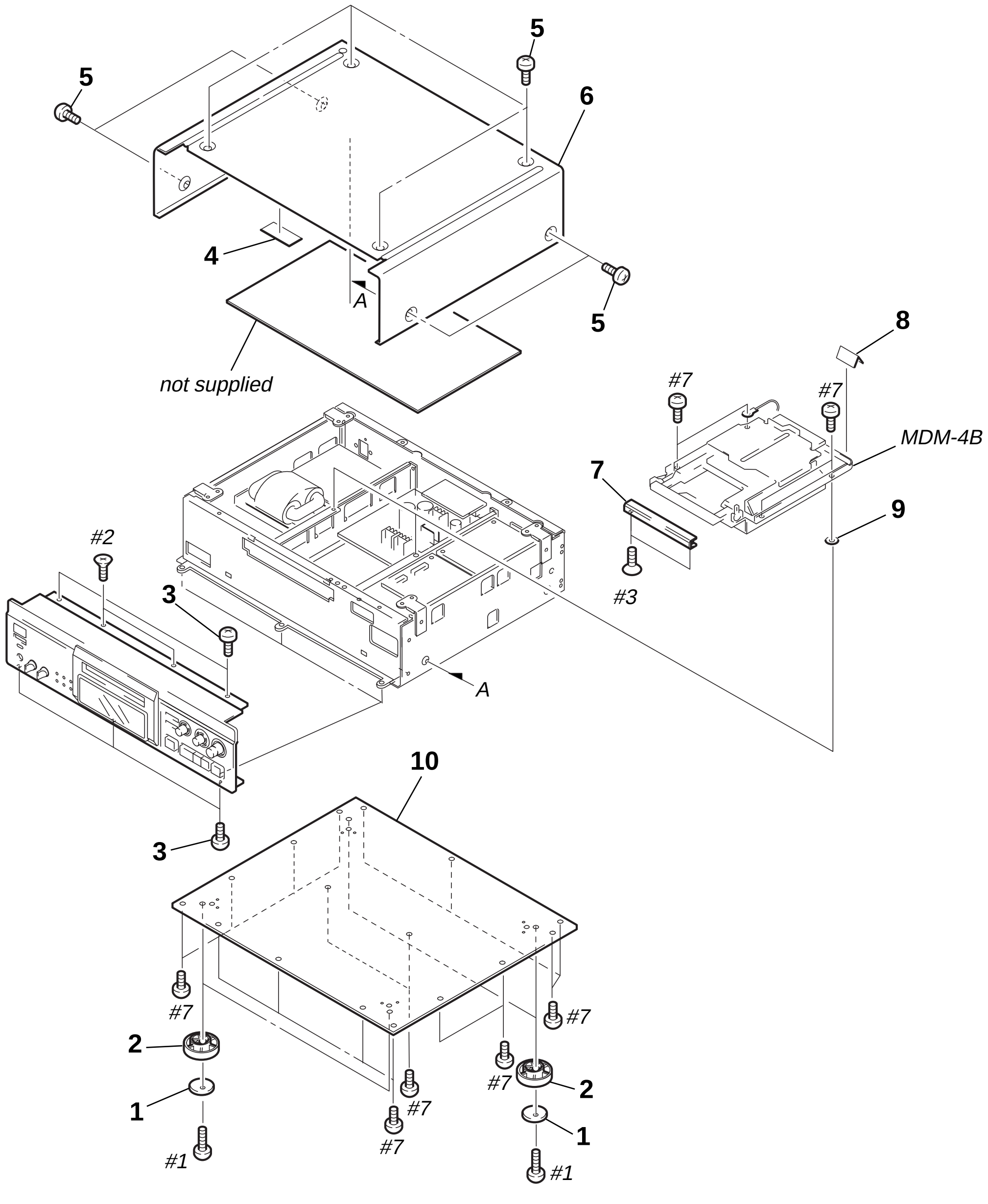
Pin No.	Pin Name	I/O	Description
41	NC	—	Not used
42	DAOR	O	Rch D/A 8Fso, 4Fso data output (Not used)
43	DAOL	O	Lch D/A 8Fso, 4Fso data output (Not used)
44	TEST3	I	Test pin (Fixed at “L”)
45	DEMP	I	Deemphasis setting input “L”:OFF (Fixed at “L”)
46	FS1	I	Deemphasis setting input Fsi frequency selection input (Fixed at “L”)
47	FS2	I	
48 to 50	TB3 to TB1	I/O	Test bus input/output (Open)
51	DATAI	I	Data input
52	LRCKI	I	Input data 1Fs word clock input (Schmidt)
53	BCKI	I	Input data bit clock input
54	FIMCK	I	Input data line Fs reference input and master clock input
55	FIMO	O	Master clock output
56	GND	—	Ground
57	TEST2	I	Test pin (Fixed at “L”)
58	TEST1	I	The second reset signal input from system controller
59	FIS	I	FIMCK frequency division rate setting input “L”:1/1 (256 Fs), “H”:1/2 (512 Fs) (Fixed at “H”)
60	MI0	I	Input data format setting input (Fixed at “H”)
61	MI1	I	Input data format setting input (Fixed at “L”)
62	DI0	I	Data input (Not used)
63	DI1	I	
64	TB0	I/O	Test bus input/output (Open)

SECTION 7
EXPLODED VIEWS

Note:
- -XX, -X mean standardized parts, so they may have some differences from the original one.
- Items marked "*" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- The mechanical parts with no reference number in the exploded views are not supplied.
- Hardware (# mark) list and accessories and packing materials are given in the last of this parts list.
- Color Indication of Appearance Parts Example:
  KNOB, BALANCE (WHITE) . . . (RED)
  ↑ Parts of Color ↑ Cabinet's Color

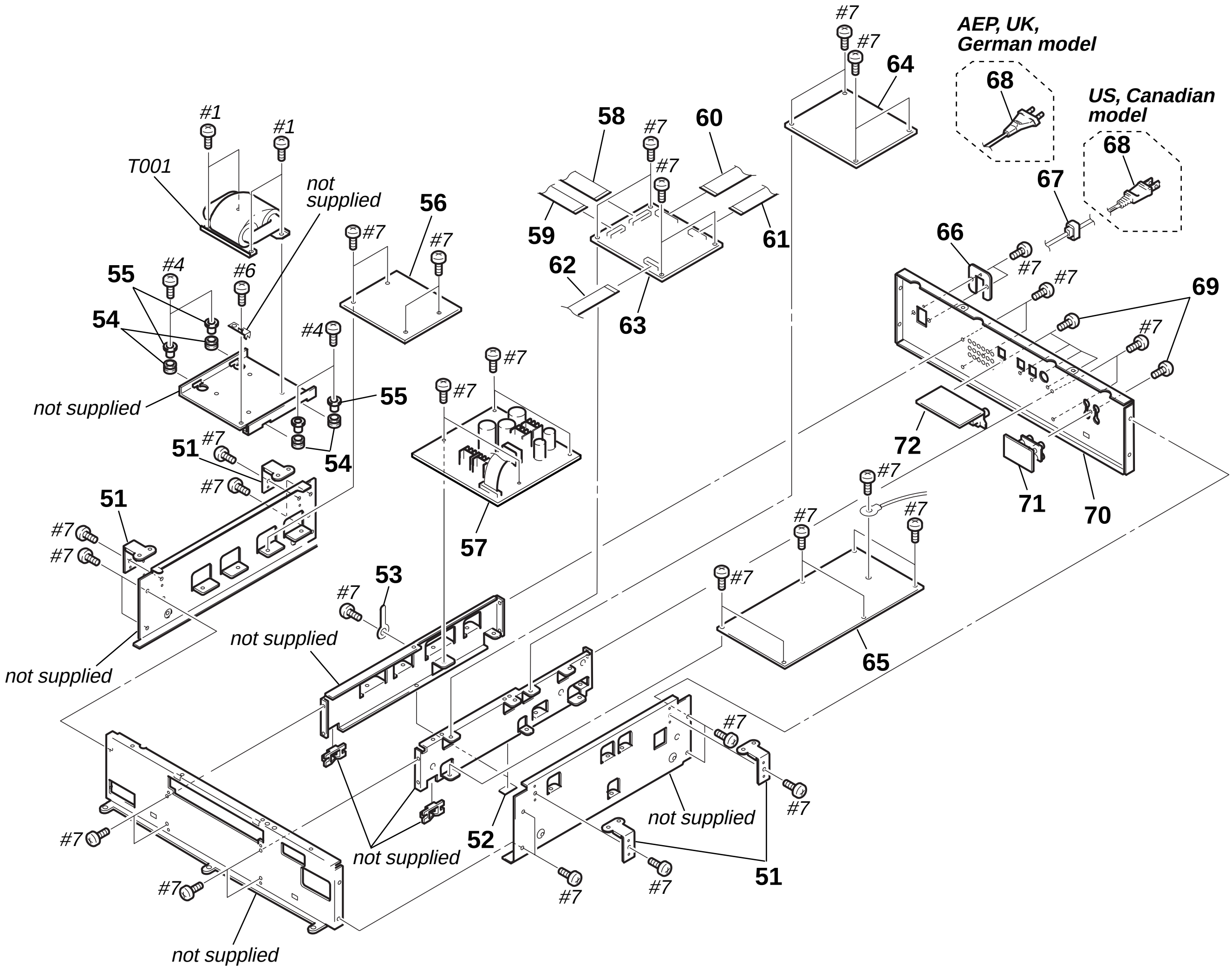
The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety. Replace only with part number specified.
Les composants identifiés par une marque ⚠ sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

7-1. MAIN SECTION



Ref. No.	Part No.	Description	Remarks
1	4-970-124-01	CUSHION (F50180S)	
2	4-970-123-01	FOOT (F50180S)	
3	4-929-074-01	SCREW (3X8)	
* 4	4-615-354-01	SPACER	
5	3-363-099-21	SCREW (CASE 3 TP2)(BLACK)	
5	3-363-099-51	SCREW (CASE 3 TP2) (GOLD)	
6	4-969-469-01	CASE (BLACK)	
6	4-969-469-31	CASE (GOLD)	
7	4-987-666-01	PANEL, LOADING (GOLD)	
7	4-987-666-11	PANEL, LOADING (BLACK)	
8	3-831-441-99	CUSHION, SPEAKER	
9	4-945-431-01	WASHER	
* 10	4-993-065-02	PLATE, BOTTOM	

7-2. CHASSIS SECTION

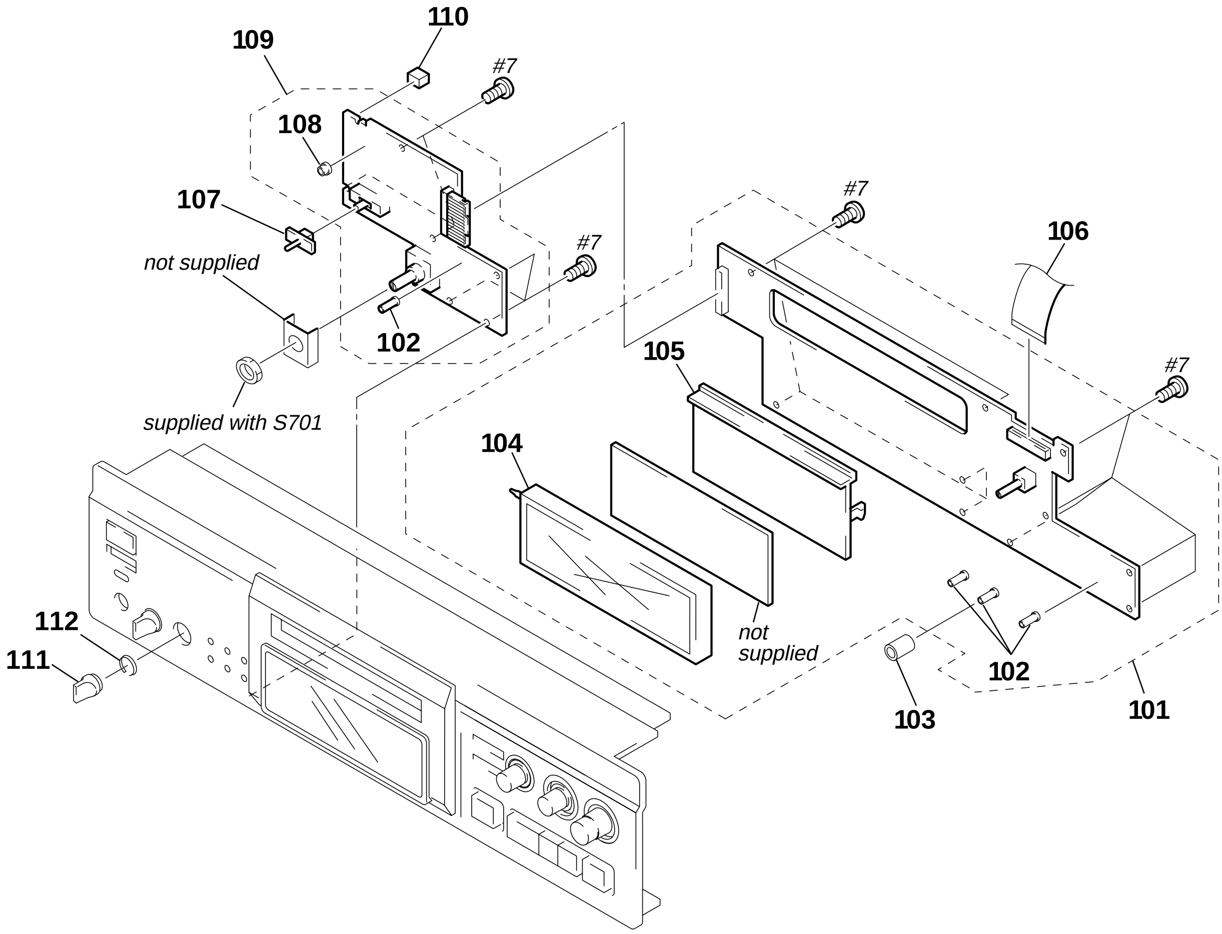


Ref. No.	Part No.	Description	Remarks
* 51	4-993-066-01	BRACKET (CASE)	
52	3-846-312-11	SPACER (E)	
53	3-703-397-01	STOPPER, WIRING	
* 54	4-888-798-00	BUSHING, RUBBER	
55	4-928-032-01	COLLAR (A)	
* 56	1-666-751-11	AC BOARD	
* 57	A-4699-791-A	PW BOARD, COMPLETE (US,Canadian)	
* 57	A-4699-804-A	PW BOARD, COMPLETE (AEP,UK,German)	
58	1-782-216-11	WIRE (FLAT TYPE) (30 CORE)	
59	1-782-215-11	WIRE (FLAT TYPE) (18 CORE) (10cm)	
60	1-777-738-11	WIRE (FLAT TYPE) (26 CORE) (18cm)	
61	1-777-737-11	WIRE (FLAT TYPE) (16 CORE)	
62	1-777-735-11	WIRE (FLAT TYPE) (18 CORE) (7.5cm)	
* 63	A-4699-802-A	DIG BOARD, COMPLETE (US,Canadian)	
* 63	A-4699-806-A	DIG BOARD, COMPLETE (AEP,UK,German)	

Ref. No.	Part No.	Description	Remarks
* 64	A-4699-789-A	AD BOARD, COMPLETE	
* 65	A-4699-790-A	DA BOARD, COMPLETE	
* 66	4-923-873-01	BRACKET, CORD STOPPER	
67	3-703-571-12	BUSHING (2104), CORD	
⚠68	1-558-568-21	CORD, POWER (AEP,UK,German)	
⚠68	1-782-959-11	CORD, POWER (US,Canadian)	
69	4-929-074-01	SCREW (3X8)	
* 70	4-992-959-12	PANEL, BACK (AEP,UK,German)	
* 70	4-992-959-22	PANEL, BACK (US)	
* 70	4-992-959-32	PANEL, BACK (Canadian)	
* 71	1-666-750-11	PJ BOARD	
* 72	A-4699-793-A	DIO BOARD, COMPLETE	
⚠T001	1-431-469-11	TRANSFORMER, POWER (US,Canadian)	
⚠T001	1-431-470-11	TRANSFORMER, POWER (AEP,UK,German)	

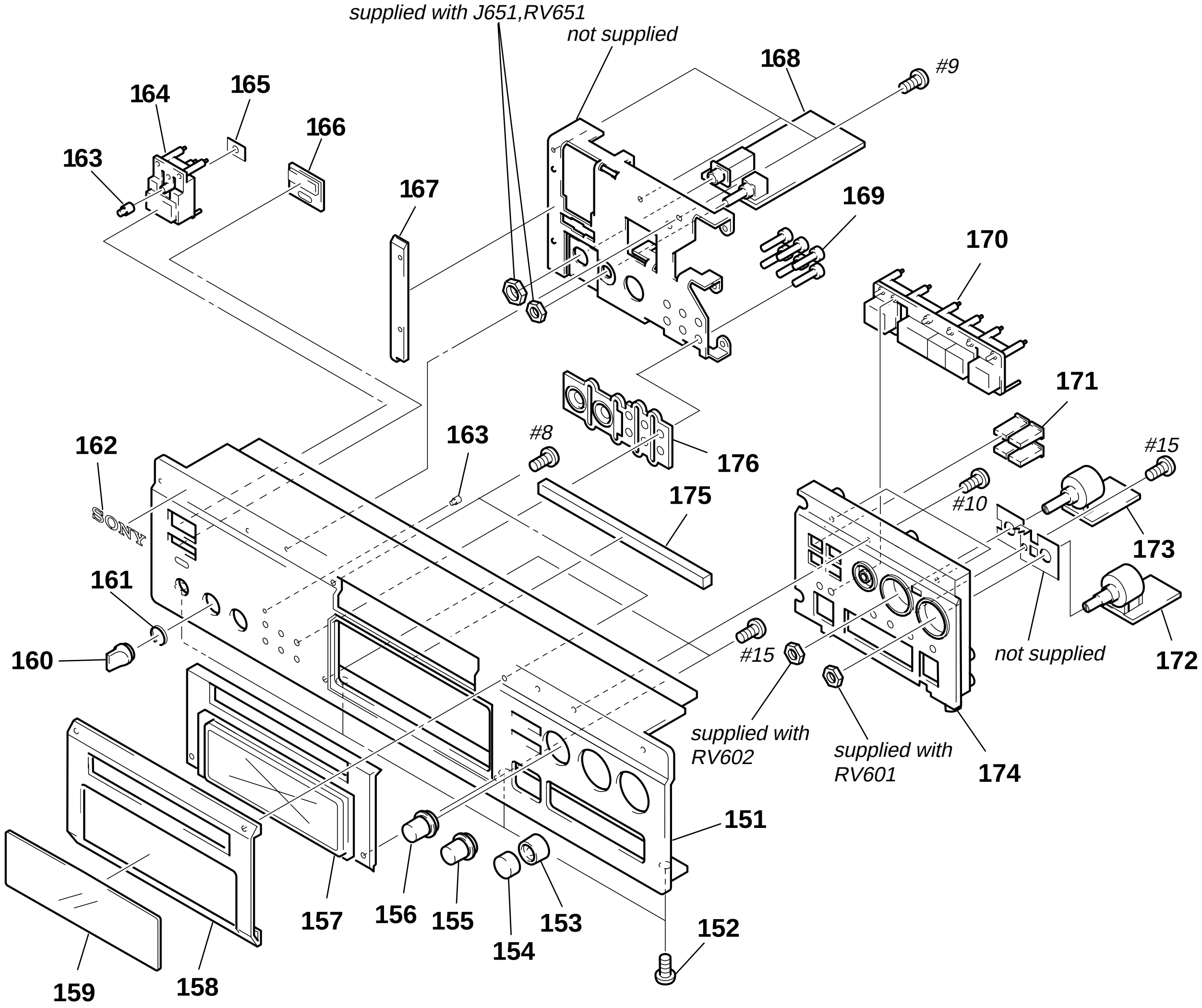
The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety. Replace only with part number specified.	Les composants identifiés par une marque ⚠ sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

7-3. FRONT PANEL SECTION 1



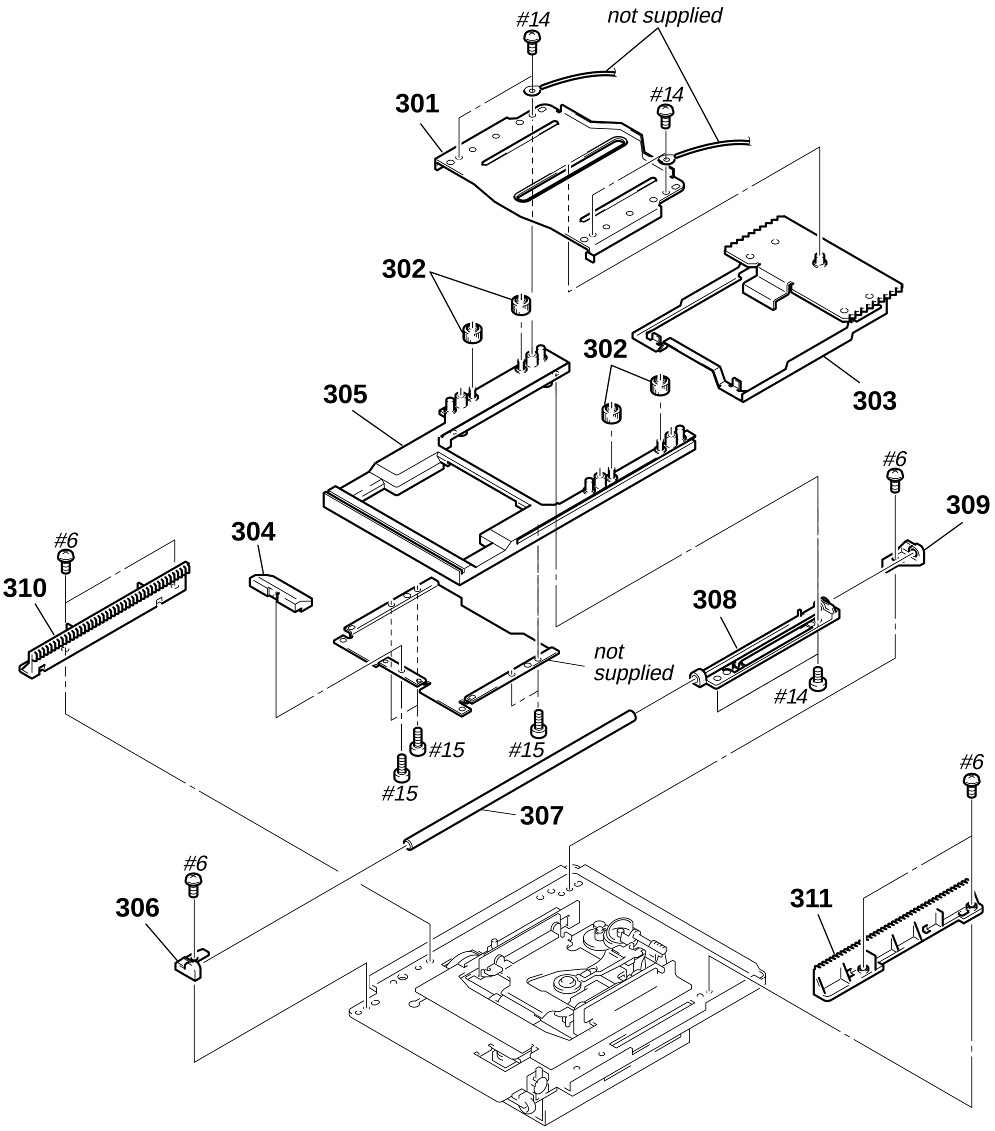
Ref. No.	Part No.	Description	Remarks
* 101	A-4699-794-A	DISP BOARD, COMPLETE	
* 102	3-362-478-11	HOLDER (T), LED	
* 103	4-988-382-01	COVER (LED)	
104	1-517-620-11	INDICATOR TUBE, FLUORESCENT	
* 105	4-987-501-01	HOLDER (FL)	
106	1-777-736-11	WIRE (FLAT TYPE) (26 CORE) (9.5cm)	
107	4-971-774-01	KNOB (TIMER)(BLACK)	
107	4-971-774-21	KNOB (TIMER)(GOLD)	
* 108	4-972-608-01	HOLDER (DIA. 5), LED	
* 109	A-4699-796-A	PSW BOARD, COMPLETE	
110	9-911-842-XX	RUBBER (B)	
111	4-992-539-01	KNOB (VOL) (GOLD)	
111	4-992-539-11	KNOB (VOL) (BLACK)	
112	3-354-981-01	SPRING (SUS), RING	

7-4. FRONT PANEL SECTION 2



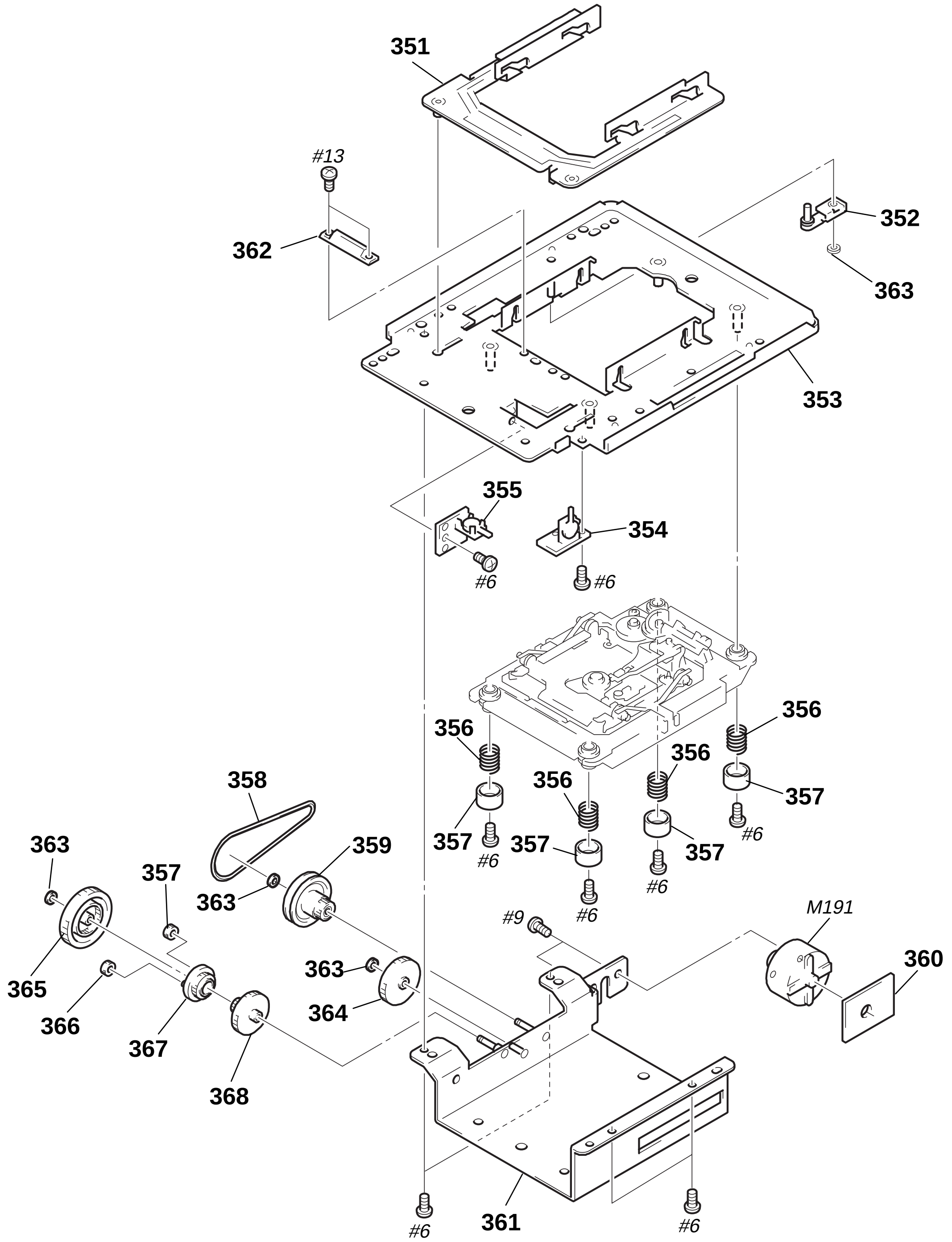
Ref. No.	Part No.	Description	Remarks
151	4-992-534-01	PANEL, FRONT (GOLD)(AEP,UK,German)	
151	4-992-534-11	PANEL, FRONT (BLACK)(AEP,UK,German)	
151	4-992-534-21	PANEL, FRONT (BLACK)(US,Canadian)	
152	4-929-074-01	SCREW (3X8)	
153	4-987-524-01	KNOB (REC L) (GOLD)	
153	4-987-524-11	KNOB (REC L)(BLACK)	
154	4-987-525-01	KNOB (REC R) (GOLD)	
154	4-987-525-11	KNOB (REC R) (BLACK)	
155	4-987-526-01	KNOB (AMS) (GOLD)	
155	4-987-526-11	KNOB (AMS) (BLACK)	
156	4-987-526-21	KNOB (AMS) (GOLD)	
156	4-987-526-31	KNOB (AMS) (BLACK)	
157	4-992-635-01	BASE, ORNAMENT (GOLD)	
157	4-992-635-11	BASE, ORNANENT (BLACK)	
158	4-992-537-01	PANEL (ESCUTCHEON) (GOLD)	
158	4-992-537-11	PANEL (ESCUTCHEON) (BLACK)	
159	4-992-541-01	PLATE, INDICATION	
160	4-992-539-01	KNOB (VOL) (GOLD)	
160	4-992-539-11	KNOB (VOL) (BLACK)	
161	3-354-981-01	SPRING (SUS), RING	
162	4-942-568-01	EMBLEM (NO.5), SONY (BLACK)	
162	4-942-568-31	EMBLEM (NO.5), SONY (GOLD)	
163	4-987-519-01	INDICATOR (D2)	
164	4-987-496-01	BUTTON (POWER) (GOLD)	
164	4-987-496-11	BUTTON (POWER) (BLACK)	
* 165	4-989-071-01	SHEET (LED POWER)	
166	4-987-520-01	WINDOW (REMOTE CONTROL) (GOLD)	
166	4-987-520-11	WINDOW (REMOTE CONTROL) (BLACK)	
167	4-992-535-02	PANEL (EDGE L) (GOLD)	
167	4-992-535-12	PANEL (EDGE L) (BLACK)	
* 168	1-666-743-11	HP BOARD	
169	4-992-540-01	BUTTON (FUNC) (GOLD)	
169	4-992-540-11	BUTTON (FUNC) (BLACK)	
170	X-4947-844-1	BUTTON (PLAY) ASSY (GOLD)	
170	X-4947-845-1	BUTTON (PLAY) ASSY (BLACK)	
171	4-992-542-01	BUTTON (EDIT) (GOLD)	
171	4-992-542-11	BUTTON (EDIT) (BLACK)	
* 172	1-666-745-11	ANALOG VOLUME BOARD	
* 173	1-666-744-11	DIGITAL VOLUME BOARD	
174	4-992-538-01	BASE (R), PANEL (GOLD)	
174	4-992-538-11	BASE (R), PANEL (BLACK)	
175	4-989-035-01	CUSHION (FL)	
176	4-992-536-01	ESCUTCHEON, KNOB (GOLD)	
176	4-992-536-11	ESCUTCHEON, KNOB (BLACK)	

7-5. MECHANISM SECTION 1 (MDM-4B)



Ref. No.	Part No.	Description	Remarks
* 301	4-987-291-01	BRACKET (TOP)	
302	4-987-293-01	GEAR (4)	
303	X-4948-835-1	SLIDER (D) ASSY	
* 304	4-987-267-01	TABLE (EJECT)	
* 305	4-987-282-01	TRAY	
306	4-987-270-01	STOPPER (SHAFT A)	
307	4-993-436-01	SHAFT	
* 308	4-987-294-01	GUIDE (SHAFT)	
309	4-987-271-01	STOPPER (SHAFT B)	
310	4-987-269-01	RACK (L)	
311	4-987-268-01	RACK (R)	

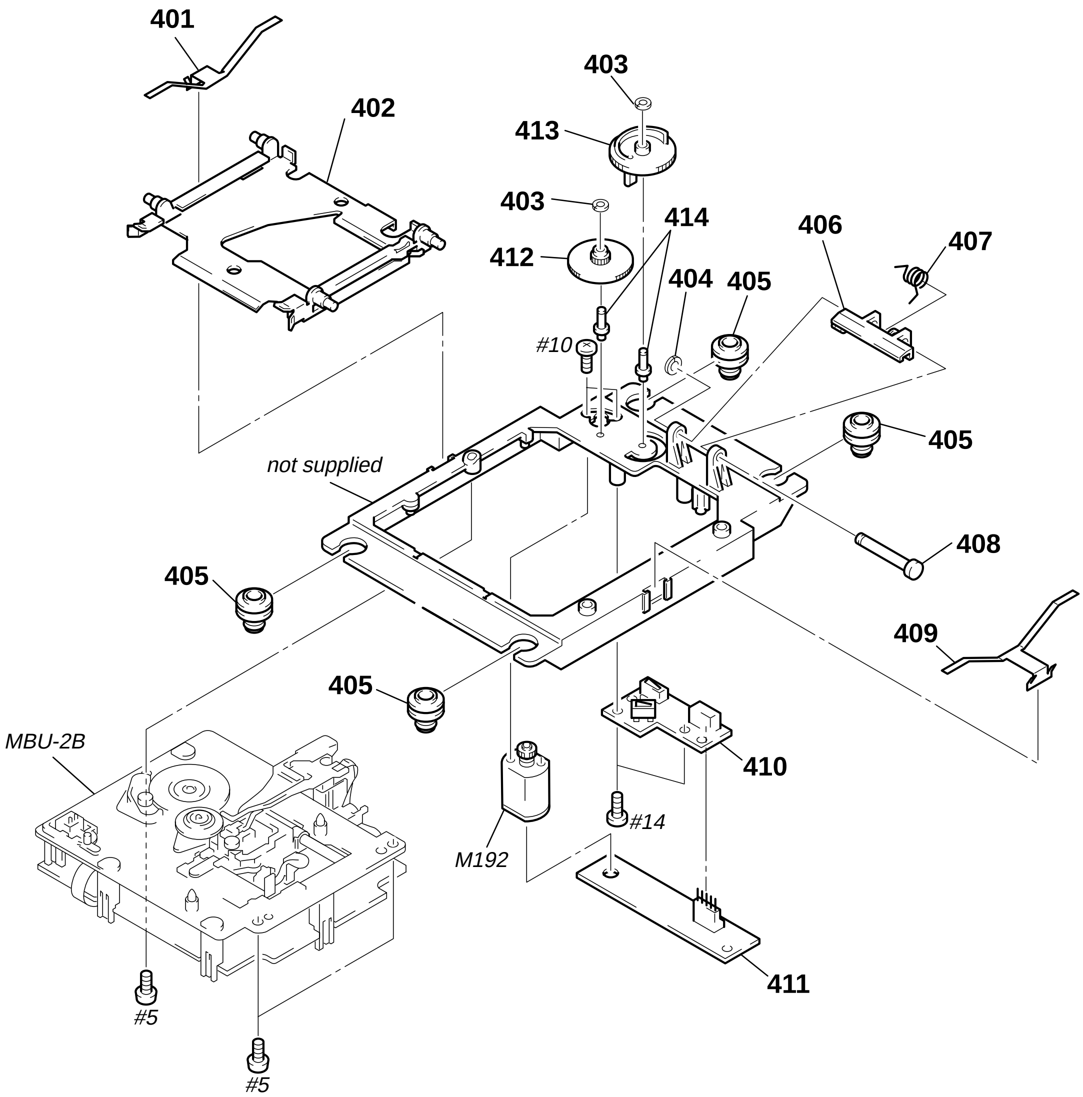
7-6. MECHANISM SECTION 2 (MDM-4B)



Ref. No.	Part No.	Description	Remarks
* 351	X-4947-819-1	SLIDER ASSY	
352	X-4947-937-1	LEVER (LOCK) ASSY	
* 353	X-4947-818-1	CHASSIS ASSY	
* 354	1-663-898-11	OUT BOARD	
* 355	1-663-897-11	IN BOARD	
356	4-987-313-01	SPRING, COMPRESSION	
* 357	4-987-314-01	COLLAR (DAMPER)	
358	4-987-308-01	BELT (LOADING)	
359	4-987-297-01	GEAR, PULLEY	
* 360	1-663-900-11	LMOT BOARD	

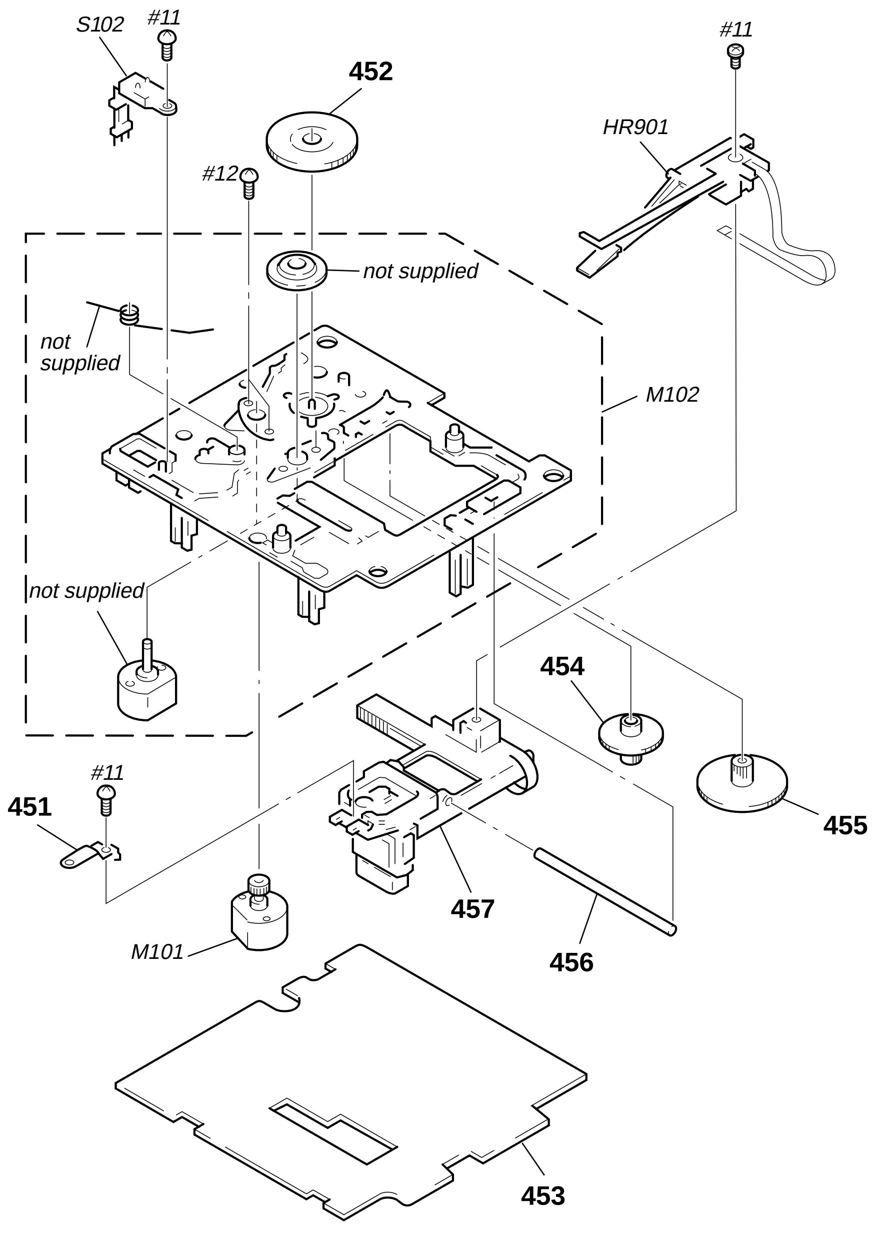
Ref. No.	Part No.	Description	Remarks
* 361	X-4947-823-1	BRACKET (MOTOR) ASSY	
362	4-987-274-01	TABLE (LOADING)	
363	4-968-919-31	WASHER, STOPPER	
364	4-987-302-01	GEAR	
365	4-987-298-01	GEAR (A), PLANET	
366	4-987-301-01	GEAR (D), PLANET	
367	4-987-300-01	GEAR (C), PLANET	
368	4-987-299-01	GEAR (B), PLANET	
M191	X-4947-824-1	MOTOR (LOADING) ASSY	

7-7. MECHANISM SECTION 3 (MDM-4B)



Ref. No.	Part No.	Description	Remarks
401	4-987-273-01	SPRING (UDL), LEAF	
* 402	X-4947-847-1	HOLDER ASSY	
403	4-989-938-01	WASHER, STOPPER	
405	4-987-312-01	INSULATOR (MD)	
406	4-987-306-01	LEVER (OWH)	
407	4-987-307-01	SPRING (OWH), TORSION	
* 408	4-989-233-01	SHAFT (OWH)	
409	4-987-272-01	SPRING (UDR), LEAF	
* 410	1-663-896-11	HLIM BOARD	
* 411	1-663-899-11	HMOT BOARD	
412	4-987-276-01	GEAR (HEAD-B)	
413	4-987-277-01	GEAR (HEAD-C)	
* 414	4-987-278-03	SHAFT (HEAD)	
M192	X-4947-821-1	MOTOR ASSY, HEAD	

7-8. BASE UNIT SECTION (MBU-2B)



Ref. No.	Part No.	Description	Remarks
451	4-967-679-01	SPRING (OP), LEAF	
452	4-967-675-01	GEAR (SL-A)	
* 453	A-4673-809-A	BD BOARD, COMPLETE	
454	4-967-676-01	GEAR (SL-B)	
455	4-967-677-01	GEAR (SL-C)	
456	4-967-678-01	SHAFT (OP)	
⚠457	8-583-009-12	OPTICAL PICK-UP KMS-210A/J-N	
HR901	1-500-304-21	HEAD, OVER WRITE	
M101	A-4660-651-A	MOTOR ASSY (SLED)	
M102	A-4660-650-A	CHASSIS ASSY, BU (SPINDLE)	
S102	1-762-148-11	SWITCH, PUSH (2 KEY)(PROTECT/REFLECT)	

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety. Replace only with part number specified.	Les composants identifiés par une marque ⚠ sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

SECTION 8
ELECTRICAL PARTS LIST

Note:

When indicating parts by reference number, please include the board name.

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety. Replace only with part number specified.

Les composants identifiés par une marque ⚠ sont critiques pour la sécurité.
Ne les remplacer que par une pièce portant le numéro spécifié.

- Abbreviation
  G : German
- Due to standardization, replacements in the parts list may be different from the parts specified in the diagrams or the components used on the set.
- -XX, -X mean standardized parts, so they may have some difference from the original one.
- Items marked "*" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- CAPACITORS:
  uF: μF
- RESISTORS
  All resistors are in ohms.
  METAL:metal-film resistor
  METAL OXIDE:Metal Oxide-film resistor
  F: nonflammable
- COILS
  uH: μH
- SEMICONDUCTORS
  In each case, u: μ, for example:
  uA...: μA... , uPA... , μPA... ,
  uPB... , μPB... , uPC... , μPC... ,
  uPD..., μPD...

Ref. No.	Part No.	Description			Remarks
*	1-666-751-11	AC BOARD			
		********			
		< CAPACITOR >			
⚠ C001	1-113-920-11	CERAMIC	0.0022uF	20%	250V (AEP,UK,G)
⚠ C002	1-113-920-11	CERAMIC	0.0022uF	20%	250V
⚠ C003	1-113-920-11	CERAMIC	0.0022uF	20%	250V
⚠ C004	1-113-920-11	CERAMIC	0.0022uF	20%	250V
⚠ C005	1-113-925-11	CERAMIC	0.01uF	20%	250V
⚠ C006	1-113-925-11	CERAMIC	0.01uF	20%	250V
⚠ C007	1-113-925-11	CERAMIC	0.01uF	20%	250V (AEP,UK,G)
		< CONNECTOR >			
CN002	1-580-230-11	PIN, CONNECTOR (PC BOARD) 2P			
CN004	1-564-321-00	PIN, CONNECTOR 2P			
		< GROUND >			
* EP001	4-870-539-00	PLATE, GROUND			
		< LINE FILTER >			
⚠ LF001	1-424-485-11	FILTER, LINE			
		< SWITCH >			
⚠ S001	1-762-764-11	SWITCH, POWER (AEP,UK,G)			

****

Ref. No.	Part No.	Description			Remarks
*	A-4699-789-A	AD BOARD, COMPLETE			
		*******************			
		< CAPACITOR >			
C305	1-162-294-31	CERAMIC	0.001uF	10%	50V
C307	1-164-159-11	CERAMIC	0.1uF		50V
C308	1-164-159-11	CERAMIC	0.1uF		50V
C309	1-124-994-11	ELECT	100uF	20%	10V
C310	1-164-159-11	CERAMIC	0.1uF		50V
C312	1-136-169-00	FILM	0.22uF	5%	50V
C313	1-126-048-81	ELECT	10uF	20%	50V
C315	1-124-995-11	ELECT	220uF	20%	10V
C317	1-164-159-11	CERAMIC	0.1uF		50V
C320	1-136-816-11	FILM	0.0022uF	5%	100V
C321	1-136-816-11	FILM	0.0022uF	5%	100V
C322	1-164-159-11	CERAMIC	0.1uF		50V
C325	1-126-023-11	ELECT	100uF	20%	25V
C326	1-126-023-11	ELECT	100uF	20%	25V
C327	1-126-023-11	ELECT	100uF	20%	25V
C328	1-126-023-11	ELECT	100uF	20%	25V
C329	1-126-023-11	ELECT	100uF	20%	25V
C330	1-126-023-11	ELECT	100uF	20%	25V
C331	1-164-159-11	CERAMIC	0.1uF		50V
C333	1-126-023-11	ELECT	100uF	20%	25V
C334	1-126-023-11	ELECT	100uF	20%	25V
C335	1-126-023-11	ELECT	100uF	20%	25V
C336	1-126-023-11	ELECT	100uF	20%	25V
C337	1-126-022-11	ELECT	47uF	20%	10V
		< CONNECTOR >			
CN301	1-580-463-11	SOCKET, CONNECTOR 16P			
* CN302	1-564-509-11	PLUG, CONNECTOR 6P			
CN303	1-564-511-11	PLUG, CONNECTOR 8P			
* CN304	1-564-508-11	PLUG, CONNECTOR 5P			
		< DIODE >			
D301	8-719-987-63	DIODE 1N4148M			
D302	8-719-987-63	DIODE 1N4148M			
D303	8-719-987-63	DIODE 1N4148M			
D304	8-719-987-63	DIODE 1N4148M			
D305	8-719-987-63	DIODE 1N4148M			
D306	8-719-987-63	DIODE 1N4148M			
D307	8-719-987-63	DIODE 1N4148M			
D308	8-719-987-63	DIODE 1N4148M			
D309	8-719-210-21	DIODE 11EQS04			
D310	8-719-210-21	DIODE 11EQS04			
		< GROUND >			
* EP301	4-870-539-00	PLATE, GROUND			
		< IC >			
IC301	8-759-604-35	IC M5F78M05L			
IC302	8-759-462-08	IC AK5352-VF-E2			
IC303	8-759-712-02	IC NJM2114D			
IC304	8-759-712-02	IC NJM2114D			
IC305	8-759-712-02	IC NJM2114D			
IC306	8-759-712-02	IC NJM2114D			
		< COIL >			
L301	1-408-405-00	INDUCTOR	4.7uH		
		< RESISTOR >			
R301	1-259-404-11	CARBON	100	5%	1/6W
R302	1-259-380-11	CARBON	10	5%	1/6W
R303	1-259-380-11	CARBON	10	5%	1/6W
R304	1-259-380-11	CARBON	10	5%	1/6W
R305	1-259-380-11	CARBON	10	5%	1/6W

Ref. No.	Part No.	Description			Remarks
R306	1-259-416-11	CARBON	330	5%	1/6W
R307	1-259-416-11	CARBON	330	5%	1/6W
R308	1-259-416-11	CARBON	330	5%	1/6W
R309	1-259-416-11	CARBON	330	5%	1/6W
R310	1-259-452-11	CARBON	10K	5%	1/6W
R311	1-259-452-11	CARBON	10K	5%	1/6W
R312	1-259-452-11	CARBON	10K	5%	1/6W
R313	1-259-452-11	CARBON	10K	5%	1/6W
R314	1-259-452-11	CARBON	10K	5%	1/6W
R315	1-259-452-11	CARBON	10K	5%	1/6W
R316	1-259-452-11	CARBON	10K	5%	1/6W
R317	1-259-452-11	CARBON	10K	5%	1/6W
R318	1-259-456-11	CARBON	15K	5%	1/6W
R319	1-259-452-11	CARBON	10K	5%	1/6W
R320	1-259-456-11	CARBON	15K	5%	1/6W
R321	1-259-484-11	CARBON	220K	5%	1/6W
R322	1-259-452-11	CARBON	10K	5%	1/6W
R323	1-259-484-11	CARBON	220K	5%	1/6W
R324	1-259-452-11	CARBON	10K	5%	1/6W
R325	1-259-452-11	CARBON	10K	5%	1/6W
R326	1-259-428-11	CARBON	1K	5%	1/6W
R327	1-259-428-11	CARBON	1K	5%	1/6W
R329	1-259-500-11	CARBON	1M	5%	1/6W
R330	1-259-500-11	CARBON	1M	5%	1/6W
R331	1-259-500-11	CARBON	1M	5%	1/6W
R332	1-259-500-11	CARBON	1M	5%	1/6W
R340	1-259-388-11	CARBON	22	5%	1/6W

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Ref. No.	Part No.	Description			Remarks
*	1-666-745-11	AVOL BOARD			
		**********			
		< CAPACITOR >			
C604	1-164-159-11	CERAMIC	0.1uF		50V
		< CONNECTOR >			
CN604	1-564-511-11	PLUG, CONNECTOR 8P			
		< VARIABLE RESISTOR >			
RV601	1-225-493-11	RES, VAR, CARBON 20K/20K			(ANALOG REC LEVEL)

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Ref. No.	Part No.	Description			Remarks
*	A-4673-809-A	BD BOARD, COMPLETE			
		*******************			
		< CAPACITOR >			
C101	1-104-913-11	TANTAL. CHIP	10uF	20%	16V
C102	1-163-038-91	CERAMIC CHIP	0.1uF		25V
C103	1-104-913-11	TANTAL. CHIP	10uF	20%	16V
C104	1-104-913-11	TANTAL. CHIP	10uF	20%	16V
C105	1-164-232-11	CERAMIC CHIP	0.01uF		50V
C106	1-163-275-11	CERAMIC CHIP	0.001uF	5%	50V
C107	1-164-232-11	CERAMIC CHIP	0.01uF		50V
C108	1-164-232-11	CERAMIC CHIP	0.01uF		50V
C109	1-163-037-11	CERAMIC CHIP	0.022uF	10%	25V
C111	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V
C112	1-164-232-11	CERAMIC CHIP	0.01uF		50V
C113	1-107-682-11	CERAMIC CHIP	1uF	10%	16V
C114	1-163-038-91	CERAMIC CHIP	0.1uF		25V
C115	1-107-682-11	CERAMIC CHIP	1uF	10%	16V
C116	1-163-019-00	CERAMIC CHIP	0.0068uF	10%	50V
C117	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V
C119	1-104-913-11	TANTAL. CHIP	10uF	20%	16V
C121	1-126-395-11	ELECT	22uF	20%	16V
C122	1-164-232-11	CERAMIC CHIP	0.01uF		50V
C123	1-163-038-91	CERAMIC CHIP	0.1uF		25V
C124	1-163-038-91	CERAMIC CHIP	0.1uF		25V
C125	1-104-760-11	CERAMIC CHIP	0.047uF	10%	50V
C126	1-107-682-11	CERAMIC CHIP	1uF	10%	16V
C127	1-163-038-91	CERAMIC CHIP	0.1uF		25V
C128	1-164-232-11	CERAMIC CHIP	0.01uF		50V
C129	1-107-823-11	CERAMIC CHIP	0.47uF	10%	16V
C130	1-163-251-11	CERAMIC CHIP	100PF	5%	50V
C131	1-104-760-11	CERAMIC CHIP	0.047uF	10%	50V
C132	1-107-682-11	CERAMIC CHIP	1uF	10%	16V
C133	1-163-017-00	CERAMIC CHIP	0.0047uF	5%	50V
C134	1-163-038-91	CERAMIC CHIP	0.1uF		25V
C135	1-163-038-91	CERAMIC CHIP	0.1uF		25V
C136	1-126-206-11	ELECT CHIP	100uF	20%	6.3V
C141	1-163-038-91	CERAMIC CHIP	0.1uF		25V
C142	1-163-251-11	CERAMIC CHIP	100PF	5%	50V
C143	1-163-251-11	CERAMIC CHIP	100PF	5%	50V
C144	1-163-251-11	CERAMIC CHIP	100PF	5%	50V
C151	1-104-913-11	TANTAL. CHIP	10uF	20%	16V
C152	1-163-038-91	CERAMIC CHIP	0.1uF		25V
C155	1-104-916-11	TANTAL. CHIP	6.8uF	20%	20V
C160	1-104-601-11	ELECT CHIP	10uF	20%	10V
C161	1-104-601-11	ELECT CHIP	10uF	20%	10V
C163	1-164-232-11	CERAMIC CHIP	0.01uF		50V
C164	1-164-232-11	CERAMIC CHIP	0.01uF		50V
C166	1-163-275-11	CERAMIC CHIP	0.001uF	5%	50V
C167	1-163-038-91	CERAMIC CHIP	0.1uF		25V
C169	1-104-913-11	TANTAL. CHIP	10uF	20%	16V
C170	1-104-913-11	TANTAL. CHIP	10uF	20%	16V
C171	1-163-038-91	CERAMIC CHIP	0.1uF		25V
C175	1-163-038-91	CERAMIC CHIP	0.1uF		25V
C176	1-163-227-11	CERAMIC CHIP	10PF	0.5PF	50V
C177	1-163-227-11	CERAMIC CHIP	10PF	0.5PF	50V
C178	1-163-038-91	CERAMIC CHIP	0.1uF		25V
C181	1-104-913-11	TANTAL. CHIP	10uF	20%	16V
C182	1-163-038-91	CERAMIC CHIP	0.1uF		25V
C183	1-163-038-91	CERAMIC CHIP	0.1uF		25V
C184	1-107-836-11	ELECT CHIP	22uF	20%	8V
C185	1-164-611-11	CERAMIC CHIP	0.001uF	10%	500V
C186	1-163-038-91	CERAMIC CHIP	0.1uF		25V
C191	1-126-395-11	ELECT	22uF	20%	16V
C192	1-163-038-91	CERAMIC CHIP	0.1uF		25V
C193	1-164-346-11	CERAMIC CHIP	1uF		16V
C194	1-126-206-11	ELECT CHIP	100uF	20%	6.3V
		< CONNECTOR >			
CN101	1-766-508-11	CONNECTOR, FFC/FPC (ZIF) 22P			
CN102	1-766-510-21	CONNECTOR, FFC/FPC 30P			
CN103	1-766-509-21	CONNECTOR, FFC/FPC 18P			
CN104	1-766-898-21	HOUSING, CONNECTOR (PC BOARD) 4P			

Ref. No.	Part No.	Description			Remarks
		< DIODE >			
D101	8-719-988-62	DIODE 1SS355			
D155	8-719-031-17	DIODE 1SS322-TE85L			
D161	8-719-421-15	DIODE MA8027-L			
D181	8-719-033-60	DIODE F1P2STP			
D183	8-719-033-60	DIODE F1P2STP			
		< IC >			
IC101	8-752-072-68	IC CXA1981AR			
IC102	8-759-243-19	IC TC7SU04F			
IC121	8-752-378-79	IC CXD2535CR			
IC122	8-759-243-19	IC TC7SU04F			
IC151	8-759-179-60	IC MPC17A38VMEL			
IC171	8-759-504-12	IC X24C01S			
IC172	8-759-149-73	IC uPC842G2			
IC181	8-759-095-65	IC TC74ACT540FS			
IC182	8-759-243-19	IC TC7SU04F			
IC191	8-759-822-99	IC L88MS05T-FA			
		< COIL >			
L101	1-414-234-11	INDUCTOR, FERRITE BEAD			
L102	1-414-234-11	INDUCTOR, FERRITE BEAD			
L103	1-414-234-11	INDUCTOR, FERRITE BEAD			
L105	1-414-234-11	INDUCTOR, FERRITE BEAD			
L106	1-414-234-11	INDUCTOR, FERRITE BEAD			
L121	1-414-234-11	INDUCTOR, FERRITE BEAD			
L122	1-412-039-51	INDUCTOR CHIP	100uH		
L151	1-412-622-51	INDUCTOR	10uH		
L152	1-412-622-51	INDUCTOR	10uH		
L153	1-412-039-51	INDUCTOR CHIP	100uH		
L154	1-412-039-51	INDUCTOR CHIP	100uH		
L155	1-410-980-51	INDUCTOR CHIP	1mH		
L161	1-414-234-11	INDUCTOR, FERRITE BEAD			
L162	1-414-234-11	INDUCTOR, FERRITE BEAD			
L195	1-233-316-21	FILTER, CHIP EMI			
		< MOTOR >			
M101	A-4660-651-A	MOTOR (SLED) ASSY			
M102	A-4660-650-A	CHASSIS ASSY, BU (SPINDLE)			
		< TRANSISTOR >			
Q101	8-729-905-12	TRANSISTOR DTA144EU			
Q151	8-729-905-18	TRANSISTOR DTC144EU			
Q162	8-729-101-07	TRANSISTOR 2SB798-DL			
Q163	8-729-905-12	TRANSISTOR DTA144EU			
Q164	8-729-924-19	TRANSISTOR DTA123JU			
Q181	8-729-018-75	TRANSISTOR 2SJ278MY			
Q182	8-729-017-65	TRANSISTOR 2SK1764KY			
		< RESISTOR >			
R101	1-216-077-00	METAL CHIP	15K	5%	1/10W
R102	1-216-073-00	METAL CHIP	10K	5%	1/10W
R103	1-216-073-00	METAL CHIP	10K	5%	1/10W
R104	1-216-049-91	METAL GLAZE	1K	5%	1/10W
R105	1-216-065-00	METAL CHIP	4.7K	5%	1/10W
R106	1-216-133-00	METAL CHIP	3.3M	5%	1/10W
R107	1-216-113-00	METAL CHIP	470K	5%	1/10W
R110	1-216-077-00	METAL CHIP	15K	5%	1/10W
R113	1-216-061-00	METAL CHIP	3.3K	5%	1/10W
R114	1-216-025-91	METAL GLAZE	100	5%	1/10W

Ref. No.	Part No.	Description			Remarks
R116	1-216-069-00	METAL CHIP	6.8K	5%	1/10W
R117	1-216-113-00	METAL CHIP	470K	5%	1/10W
R120	1-216-025-91	METAL GLAZE	100	5%	1/10W
R121	1-216-097-91	METAL GLAZE	100K	5%	1/10W
R122	1-216-295-91	CONDUCTOR, CHIP (2012)			
R123	1-216-037-00	METAL CHIP	330	5%	1/10W
R124	1-216-025-91	METAL GLAZE	100	5%	1/10W
R125	1-216-025-91	METAL GLAZE	100	5%	1/10W
R128	1-216-053-00	METAL CHIP	1.5K	5%	1/10W
R129	1-216-037-00	METAL CHIP	330	5%	1/10W
R130	1-216-041-00	METAL CHIP	470	5%	1/10W
R131	1-216-073-00	METAL CHIP	10K	5%	1/10W
R132	1-216-097-91	METAL GLAZE	100K	5%	1/10W
R133	1-216-129-00	METAL CHIP	2.2M	5%	1/10W
R134	1-216-037-00	METAL CHIP	330	5%	1/10W
R135	1-216-053-00	METAL CHIP	1.5K	5%	1/10W
R136	1-216-041-00	METAL CHIP	470	5%	1/10W
R137	1-216-025-91	METAL GLAZE	100	5%	1/10W
R139	1-216-017-91	METAL GLAZE	47	5%	1/10W
R140	1-216-017-91	METAL GLAZE	47	5%	1/10W
R141	1-216-295-91	CONDUCTOR, CHIP (2012)			
R142	1-216-073-00	METAL CHIP	10K	5%	1/10W
R143	1-216-073-00	METAL CHIP	10K	5%	1/10W
R144	1-216-025-91	METAL GLAZE	100	5%	1/10W
R145	1-216-121-91	METAL GLAZE	1M	5%	1/10W
R146	1-216-037-00	METAL CHIP	330	5%	1/10W
R147	1-216-025-91	METAL GLAZE	100	5%	1/10W
R148	1-216-045-00	METAL CHIP	680	5%	1/10W
R150	1-216-295-91	CONDUCTOR, CHIP (2012)			
R151	1-216-097-91	METAL GLAZE	100K	5%	1/10W
R154	1-220-262-11	METAL GLAZE	680	5%	1/4W
R155	1-220-262-11	METAL GLAZE	680	5%	1/4W
R158	1-216-121-91	METAL GLAZE	1M	5%	1/10W
R161	1-216-057-00	METAL CHIP	2.2K	5%	1/10W
R162	1-216-057-00	METAL CHIP	2.2K	5%	1/10W
R163	1-216-057-00	METAL CHIP	2.2K	5%	1/10W
R164	1-216-045-00	METAL CHIP	680	5%	1/10W
R165	1-216-097-91	METAL GLAZE	100K	5%	1/10W
R166	1-220-250-11	METAL GLAZE	10	5%	1/2W
R167	1-216-065-00	METAL CHIP	4.7K	5%	1/10W
R169	1-219-724-11	METAL CHIP	1	1%	1/4W
R170	1-216-073-00	METAL CHIP	10K	5%	1/10W
R171	1-216-073-00	METAL CHIP	10K	5%	1/10W
R172	1-216-065-00	METAL CHIP	4.7K	5%	1/10W
R174	1-216-065-00	METAL CHIP	4.7K	5%	1/10W
R176	1-216-065-00	METAL CHIP	4.7K	5%	1/10W
R178	1-216-065-00	METAL CHIP	4.7K	5%	1/10W
R181	1-216-073-00	METAL CHIP	10K	5%	1/10W
R182	1-216-089-91	METAL GLAZE	47K	5%	1/10W
R183	1-216-089-91	METAL GLAZE	47K	5%	1/10W
R186	1-216-134-00	METAL CHIP	2.2	5%	1/8W
R187	1-216-134-00	METAL CHIP	2.2	5%	1/8W
		< VARIABLE RESISTOR >			
RV101	1-241-396-11	RES, ADJ, METAL GLAZE 22K			
RV102	1-241-396-11	RES, ADJ, METAL GLAZE 22K			
		< SWITCH >			
S101	1-572-467-61	SWITCH, PUSH (1 KEY)(LIMIT IN)			

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Ref. No.	Part No.	Description			Remarks
*	A-4699-790-A	DA BOARD, COMPLETE			
		*******************			
		< BUS BAR >			
* BB501	1-560-242-31	BUS BAR 5P			
		< CAPACITOR >			
C501	1-124-995-11	ELECT	220uF	20%	10V
C502	1-162-294-31	CERAMIC	0.001uF	10%	50V
C503	1-164-159-11	CERAMIC	0.1uF		50V
C504	1-124-995-11	ELECT	220uF	20%	10V
C505	1-164-159-11	CERAMIC	0.1uF		50V
C506	1-124-995-11	ELECT	220uF	20%	10V
C507	1-164-159-11	CERAMIC	0.1uF		50V
C508	1-164-159-11	CERAMIC	0.1uF		50V
C511	1-162-294-31	CERAMIC	0.001uF	10%	50V
C513	1-126-335-11	ELECT	220uF	20%	10V
C514	1-164-159-11	CERAMIC	0.1uF		50V
C515	1-164-159-11	CERAMIC	0.1uF		50V
C516	1-126-335-11	ELECT	220uF	20%	10V
C517	1-164-159-11	CERAMIC	0.1uF		50V
C518	1-164-159-11	CERAMIC	0.1uF		50V
C519	1-162-199-31	CERAMIC	10PF	5%	50V
C520	1-162-199-31	CERAMIC	10PF	5%	50V
C521	1-126-335-11	ELECT	220uF	20%	10V
C522	1-126-335-11	ELECT	220uF	20%	10V
C523	1-164-159-11	CERAMIC	0.1uF		50V
C524	1-126-335-11	ELECT	220uF	20%	10V
C525	1-124-689-11	ELECT	1000uF	20%	16V
C526	1-128-198-11	ELECT	22uF	20%	63V
C527	1-136-960-11	FILM	0.1uF	10%	160V
C528	1-128-198-11	ELECT	22uF	20%	63V
C530	1-164-159-11	CERAMIC	0.1uF		50V
C531	1-136-960-11	FILM	0.1uF	10%	160V
C532	1-164-159-11	CERAMIC	0.1uF		50V
C535	1-164-159-11	CERAMIC	0.1uF		50V
C537	1-126-052-11	ELECT	100uF	20%	16V
C541	1-126-052-11	ELECT	100uF	20%	16V
C543	1-164-159-11	CERAMIC	0.1uF		50V
C544	1-136-165-00	FILM	0.1uF	5%	50V
C545	1-136-165-00	FILM	0.1uF	5%	50V
C547	1-124-724-11	ELECT	47uF	20%	50V
C548	1-124-724-11	ELECT	47uF	20%	50V
C549	1-136-165-00	FILM	0.1uF	5%	50V
C550	1-136-165-00	FILM	0.1uF	5%	50V
C551	1-126-052-11	ELECT	100uF	20%	16V
C553	1-126-052-11	ELECT	100uF	20%	16V
C554	1-164-159-11	CERAMIC	0.1uF		50V
C555	1-164-159-11	CERAMIC	0.1uF		50V
C556	1-130-973-00	FILM	0.022uF	5%	63V
C557	1-130-973-00	FILM	0.022uF	5%	63V
C558	1-126-103-11	ELECT	470uF	20%	16V
C559	1-126-103-11	ELECT	470uF	20%	16V
C560	1-164-159-11	CERAMIC	0.1uF		50V
C561	1-164-159-11	CERAMIC	0.1uF		50V
C562	1-130-969-11	FILM	0.012uF	3%	100V
C563	1-130-969-11	FILM	0.012uF	3%	100V

Ref. No.	Part No.	Description			Remarks
C564	1-130-969-11	FILM	0.012uF	3%	100V
C565	1-130-969-11	FILM	0.012uF	3%	100V
C566	1-136-233-11	FILM	0.0047uF	3%	100V
C567	1-136-233-11	FILM	0.0047uF	3%	100V
C568	1-136-233-11	FILM	0.0047uF	3%	100V
C569	1-136-233-11	FILM	0.0047uF	3%	100V
C570	1-136-356-11	FILM	470PF	5%	100V
C571	1-136-356-11	FILM	470PF	5%	100V
C572	1-136-356-11	FILM	470PF	5%	100V
C573	1-136-356-11	FILM	470PF	5%	100V
C576	1-136-818-11	FILM	0.0047uF	5%	100V
C577	1-136-818-11	FILM	0.0047uF	5%	100V
C580	1-136-814-11	FILM	0.001uF	5%	100V
C581	1-136-814-11	FILM	0.001uF	5%	100V
C584	1-128-201-11	ELECT	100uF	20%	50V
C585	1-128-201-11	ELECT	100uF	20%	50V
C588	1-128-088-11	ELECT	220uF	20%	50V
C589	1-128-088-11	ELECT	220uF	20%	50V
C590	1-162-294-31	CERAMIC	0.001uF	10%	50V
C591	1-164-159-11	CERAMIC	0.1uF		50V
C592	1-164-159-11	CERAMIC	0.1uF		50V
C593	1-162-294-31	CERAMIC	0.001uF	10%	50V
C595	1-104-646-11	CERAMIC	2.2uF	20%	50V
C596	1-104-646-11	CERAMIC	2.2uF	20%	50V
		< CONNECTOR >			
CN501	1-573-150-11	SOCKET, CONNECTOR 18P			
* CN503	1-564-514-11	PLUG, CONNECTOR 11P			
* CN504	1-564-709-11	PIN, CONNECTOR (SMALL TYPE) 7P			
		< DIODE >			
D501	8-719-210-21	DIODE 11EQS04			
D503	8-719-987-63	DIODE 1N4148M			
		< GROUND >			
* EP501	4-870-539-00	PLATE, GROUND			
* EP502	4-870-539-00	PLATE, GROUND			
		< TERMINAL >			
ET501	4-924-264-01	TERMINAL, MOUNT			
		< IC >			
IC501	8-759-462-70	IC CXD8679Q			
IC502	8-759-476-47	IC CXD8594Q			
IC503	8-759-604-35	IC M5F78M05L			
IC504	8-759-371-51	IC CXA8042AS			
IC505	8-759-371-51	IC CXA8042AS			
IC506	8-759-604-95	IC M5F79M07L			
IC507	8-759-605-00	IC M5F78M07L			
IC508	8-759-712-02	IC NJM2114D			
IC509	8-759-712-02	IC NJM2114D			
IC510	8-759-712-02	IC NJM2114D			
IC511	8-759-712-02	IC NJM2114D			

Ref. No.	Part No.	Description			Remarks
		< COIL >			
L501	1-408-405-00	INDUCTOR	4.7uH		
* L503	1-410-858-21	INDUCTOR	0uH		
L505	1-408-405-00	INDUCTOR	4.7uH		
L506	1-408-405-00	INDUCTOR	4.7uH		
L507	1-408-405-00	INDUCTOR	4.7uH		
L508	1-408-405-00	INDUCTOR	4.7uH		
		< TRANSISTOR >			
Q505	8-729-140-98	TRANSISTOR	2SD773-34		
		< RESISTOR >			
R501	1-259-380-11	CARBON	10	5%	1/6W
R502	1-259-380-11	CARBON	10	5%	1/6W
R503	1-259-404-11	CARBON	100	5%	1/6W
R504	1-259-380-11	CARBON	10	5%	1/6W
R505	1-259-380-11	CARBON	10	5%	1/6W
R506	1-259-380-11	CARBON	10	5%	1/6W
R507	1-259-380-11	CARBON	10	5%	1/6W
R512	1-259-380-11	CARBON	10	5%	1/6W
R513	1-259-404-11	CARBON	100	5%	1/6W
R514	1-259-404-11	CARBON	100	5%	1/6W
R518	1-259-404-11	CARBON	100	5%	1/6W
R520	1-259-452-11	CARBON	10K	5%	1/6W
R521	1-259-416-11	CARBON	330	5%	1/6W
R522	1-259-416-11	CARBON	330	5%	1/6W
R523	1-259-416-11	CARBON	330	5%	1/6W
R524	1-259-416-11	CARBON	330	5%	1/6W
R525	1-259-416-11	CARBON	330	5%	1/6W
R526	1-259-416-11	CARBON	330	5%	1/6W
R527	1-259-416-11	CARBON	330	5%	1/6W
R528	1-259-416-11	CARBON	330	5%	1/6W
R529	1-259-416-11	CARBON	330	5%	1/6W
R530	1-259-416-11	CARBON	330	5%	1/6W
R531	1-249-504-11	CARBON	10	5%	1/4W
R532	1-249-504-11	CARBON	10	5%	1/4W
R533	1-249-504-11	CARBON	10	5%	1/4W
R534	1-249-504-11	CARBON	10	5%	1/4W
R535	1-249-504-11	CARBON	10	5%	1/4W
R536	1-249-504-11	CARBON	10	5%	1/4W
R537	1-249-504-11	CARBON	10	5%	1/4W
R538	1-249-504-11	CARBON	10	5%	1/4W
R539	1-249-514-11	CARBON	27	5%	1/4W
R540	1-249-514-11	CARBON	27	5%	1/4W
R541	1-249-514-11	CARBON	27	5%	1/4W
R542	1-249-514-11	CARBON	27	5%	1/4W
R543	1-249-542-11	CARBON	390	5%	1/4W
R544	1-249-542-11	CARBON	390	5%	1/4W
R545	1-249-542-11	CARBON	390	5%	1/4W
R546	1-249-542-11	CARBON	390	5%	1/4W
R547	1-249-567-91	CARBON	4.3K	5%	1/4W
R548	1-249-567-91	CARBON	4.3K	5%	1/4W
R549	1-249-567-91	CARBON	4.3K	5%	1/4W
R550	1-249-567-91	CARBON	4.3K	5%	1/4W
R551	1-247-722-11	CARBON	5.6K	5%	1/4W F
R552	1-247-722-11	CARBON	5.6K	5%	1/4W F
R553	1-247-722-11	CARBON	5.6K	5%	1/4W F
R554	1-247-722-11	CARBON	5.6K	5%	1/4W F
R555	1-249-923-11	CARBON	1K	5%	1/4W
R556	1-249-923-11	CARBON	1K	5%	1/4W
R559	1-249-923-11	CARBON	1K	5%	1/4W
R560	1-249-923-11	CARBON	1K	5%	1/4W
R577	1-249-528-91	CARBON	100	5%	1/4W
R578	1-249-528-91	CARBON	100	5%	1/4W
R581	1-259-452-11	CARBON	10K	5%	1/6W
R582	1-259-452-11	CARBON	10K	5%	1/6W
R583	1-259-452-11	CARBON	10K	5%	1/6W
R584	1-249-469-11	CARBON	100K	5%	1/4W
R585	1-249-469-11	CARBON	100K	5%	1/4W
R586	1-259-412-11	CARBON	220	5%	1/6W
R587	1-259-412-11	CARBON	220	5%	1/6W
R588	1-259-436-11	CARBON	2.2K	5%	1/6W
R589	1-259-436-11	CARBON	2.2K	5%	1/6W
		< RELAY >			
RY501	1-515-802-11	RELAY			
		< VIBRATOR >			
X501	1-579-161-11	VIBRATOR, CRYSTAL (45MHz)			

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Ref. No.	Part No.	Description			Remarks
*	A-4699-802-A	DIG BOARD, COMPLETE (US,Canadian)			
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*	A-4699-806-A	DIG BOARD, COMPLETE (AEP,UK,G)			
		********************			
		< CAPACITOR >			
C201	1-163-038-91	CERAMIC CHIP	0.1uF		25V
C202	1-163-038-91	CERAMIC CHIP	0.1uF		25V
C203	1-163-038-91	CERAMIC CHIP	0.1uF		25V
C204	1-163-141-00	CERAMIC CHIP	0.001uF	5%	50V
C205	1-163-117-00	CERAMIC CHIP	100PF	5%	50V
C206	1-126-204-11	ELECT CHIP	47uF	20%	16V
C207	1-163-117-00	CERAMIC CHIP	100PF	5%	50V
C208	1-163-141-00	CERAMIC CHIP	0.001uF	5%	50V
C209	1-163-038-91	CERAMIC CHIP	0.1uF		25V
C210	1-163-141-00	CERAMIC CHIP	0.001uF	5%	50V
C211	1-163-141-00	CERAMIC CHIP	0.001uF	5%	50V
C212	1-163-141-00	CERAMIC CHIP	0.001uF	5%	50V
C213	1-163-141-00	CERAMIC CHIP	0.001uF	5%	50V
C214	1-126-204-11	ELECT CHIP	47uF	20%	16V
C215	1-163-038-91	CERAMIC CHIP	0.1uF		25V
C216	1-164-232-11	CERAMIC CHIP	0.01uF		50V
C217	1-163-038-91	CERAMIC CHIP	0.1uF		25V
C218	1-163-038-91	CERAMIC CHIP	0.1uF		25V
C219	1-126-204-11	ELECT CHIP	47uF	20%	16V
C220	1-163-141-00	CERAMIC CHIP	0.001uF	5%	50V
C221	1-163-038-91	CERAMIC CHIP	0.1uF		25V
C222	1-163-038-91	CERAMIC CHIP	0.1uF		25V
C223	1-163-231-11	CERAMIC CHIP	15PF	5%	50V
C224	1-163-231-11	CERAMIC CHIP	15PF	5%	50V
C225	1-163-117-00	CERAMIC CHIP	100PF	5%	50V
C226	1-163-141-00	CERAMIC CHIP	0.001uF	5%	50V
C227	1-163-141-00	CERAMIC CHIP	0.001uF	5%	50V
C228	1-163-109-00	CERAMIC CHIP	47PF	5%	50V
C230	1-163-038-91	CERAMIC CHIP	0.1uF		25V
C231	1-126-193-11	ELECT	1uF	20%	50V

Ref. No.	Part No.	Description			Remarks
C232	1-163-038-91	CERAMIC CHIP	0.1uF		25V
C233	1-163-038-91	CERAMIC CHIP	0.1uF		25V
C234	1-126-206-11	ELECT CHIP	100uF	20%	6.3V
C236	1-126-204-11	ELECT CHIP	47uF	20%	16V
C238	1-163-038-91	CERAMIC CHIP	0.1uF		25V
C239	1-163-038-91	CERAMIC CHIP	0.1uF		25V
C240	1-126-204-11	ELECT CHIP	47uF	20%	16V
C241	1-126-204-11	ELECT CHIP	47uF	20%	16V
C242	1-163-038-91	CERAMIC CHIP	0.1uF		25V
C243	1-163-038-91	CERAMIC CHIP	0.1uF		25V
C244	1-126-204-11	ELECT CHIP	47uF	20%	16V
C245	1-163-038-91	CERAMIC CHIP	0.1uF		25V
C246	1-163-038-91	CERAMIC CHIP	0.1uF		25V
C247	1-163-038-91	CERAMIC CHIP	0.1uF		25V
C248	1-163-038-91	CERAMIC CHIP	0.1uF		25V
C249	1-163-141-00	CERAMIC CHIP	0.001uF	5%	50V
C250	1-163-038-91	CERAMIC CHIP	0.1uF		25V
C251	1-163-038-91	CERAMIC CHIP	0.1uF		25V
C252	1-163-038-91	CERAMIC CHIP	0.1uF		25V
C255	1-163-038-91	CERAMIC CHIP	0.1uF		25V
C256	1-163-038-91	CERAMIC CHIP	0.1uF		25V
C258	1-163-038-91	CERAMIC CHIP	0.1uF		25V
C259	1-163-038-91	CERAMIC CHIP	0.1uF		25V
C261	1-163-038-91	CERAMIC CHIP	0.1uF		25V
C262	1-163-038-91	CERAMIC CHIP	0.1uF		25V
C263	1-163-109-00	CERAMIC CHIP	47PF	5%	50V
C264	1-163-141-00	CERAMIC CHIP	0.001uF	5%	50V
C265	1-163-038-91	CERAMIC CHIP	0.1uF		25V
C266	1-163-038-91	CERAMIC CHIP	0.1uF		25V
C267	1-163-038-91	CERAMIC CHIP	0.1uF		25V
C268	1-163-038-91	CERAMIC CHIP	0.1uF		25V
C269	1-163-038-91	CERAMIC CHIP	0.1uF		25V
C270	1-163-141-00	CERAMIC CHIP	0.001uF	5%	50V
C271	1-163-117-00	CERAMIC CHIP	100PF	5%	50V
C272	1-163-109-00	CERAMIC CHIP	47PF	5%	50V
C273	1-163-117-00	CERAMIC CHIP	100PF	5%	50V
C275	1-163-038-91	CERAMIC CHIP	0.1uF		25V
		< CONNECTOR >			
CN201	1-766-510-21	CONNECTOR, FFC/FPC 30P			
CN202	1-766-502-11	PIN, CONNECTOR (FOR PCB)			
CN203	1-770-142-11	CONNECTOR, FFC (ZIF) 26P			
CN204	1-766-502-11	PIN, CONNECTOR (FOR PCB)			
CN205	1-770-142-11	CONNECTOR, FFC (ZIF) 26P			
CN206	1-766-509-21	CONNECTOR, FFC/FPC 18P			
CN207	1-580-888-11	SOCKET, CONNECTOR (SMT) 18P			
CN208	1-580-887-11	SOCKET, CONNECTOR (SMT) 16P			
* CN209	1-750-492-31	PIN, CONNECTOR (PC BOARD) 4P			
		< IC >			
IC201	8-759-040-83	IC BA6287F			
IC202	8-759-491-62	IC M30610EC-1086CFP			
IC203	8-759-444-20	IC LC89051V-TLM			
IC204	8-759-426-95	IC L88MS33T-TL			
IC205	8-759-456-31	IC TC74LCX244FS (EL)			
IC206	8-752-381-28	IC CXD2537R			
IC207	8-759-461-47	IC MSM9404AGS-BK			
IC208	8-759-344-86	IC MSM514400C-70SJ			
IC210	8-759-272-05	IC TC74VHCT244F (EL)			
IC211	8-759-031-84	IC SC7S04F			

Ref. No.	Part No.	Description			Remarks
IC212	8-759-040-83	IC BA6287F			
IC213	8-759-180-84	IC TC7W74F			
		< JUMPER RESISTOR >			
JW201	1-216-295-91	CONDUCTOR, CHIP (2012)			
		< COIL >			
L201	1-412-336-41	INDUCTOR	4.7uH		
L202	1-412-336-41	INDUCTOR	4.7uH		
L203	1-412-336-41	INDUCTOR	4.7uH		
L204	1-412-336-41	INDUCTOR	4.7uH		
L205	1-412-336-41	INDUCTOR	4.7uH		
L206	1-412-336-41	INDUCTOR	4.7uH		
		< TRANSISTOR >			
Q201	8-729-015-76	TRANSISTOR UN5211			
Q202	8-729-015-76	TRANSISTOR UN5211			
		< RESISTOR >			
R201	1-216-021-00	METAL CHIP	68	5%	1/10W
R203	1-216-097-91	METAL GLAZE	100K	5%	1/10W
R204	1-216-073-00	METAL CHIP	10K	5%	1/10W
R205	1-216-097-91	METAL GLAZE	100K	5%	1/10W
R206	1-216-073-00	METAL CHIP	10K	5%	1/10W
R207	1-216-049-91	METAL GLAZE	1K	5%	1/10W
R209	1-216-073-00	METAL CHIP	10K	5%	1/10W
R210	1-216-073-00	METAL CHIP	10K	5%	1/10W
R211	1-216-073-00	METAL CHIP	10K	5%	1/10W
R212	1-216-097-91	METAL GLAZE	100K	5%	1/10W
R213	1-216-073-00	METAL CHIP	10K	5%	1/10W
R214	1-216-073-00	METAL CHIP	10K	5%	1/10W
R216	1-216-073-00	METAL CHIP	10K	5%	1/10W (AEP,UK,G)
R217	1-216-073-00	METAL CHIP	10K	5%	1/10W (US,Canadian)
R218	1-216-073-00	METAL CHIP	10K	5%	1/10W (US,Canadian)
R219	1-216-073-00	METAL CHIP	10K	5%	1/10W (AEP,UK,G)
R220	1-216-073-00	METAL CHIP	10K	5%	1/10W
R221	1-216-073-00	METAL CHIP	10K	5%	1/10W
R222	1-216-097-91	METAL GLAZE	100K	5%	1/10W
R223	1-216-097-91	METAL GLAZE	100K	5%	1/10W
R224	1-216-097-91	METAL GLAZE	100K	5%	1/10W
R225	1-216-097-91	METAL GLAZE	100K	5%	1/10W
R226	1-216-073-00	METAL CHIP	10K	5%	1/10W
R227	1-216-097-91	METAL GLAZE	100K	5%	1/10W
R228	1-216-073-00	METAL CHIP	10K	5%	1/10W
R229	1-216-097-91	METAL GLAZE	100K	5%	1/10W
R230	1-216-109-00	METAL CHIP	330K	5%	1/10W
R231	1-216-097-91	METAL GLAZE	100K	5%	1/10W
R232	1-216-073-00	METAL CHIP	10K	5%	1/10W
R233	1-216-073-00	METAL CHIP	10K	5%	1/10W
R234	1-216-097-91	METAL GLAZE	100K	5%	1/10W
R235	1-216-073-00	METAL CHIP	10K	5%	1/10W
R236	1-216-065-00	METAL CHIP	4.7K	5%	1/10W
R237	1-216-109-00	METAL CHIP	330K	5%	1/10W
R238	1-216-065-00	METAL CHIP	4.7K	5%	1/10W

Ref. No.	Part No.	Description			Remarks
R239	1-216-082-00	METAL GLAZE	24K	5%	1/10W
R240	1-216-073-00	METAL CHIP	10K	5%	1/10W
R241	1-216-073-00	METAL CHIP	10K	5%	1/10W
R242	1-216-029-00	METAL CHIP	150	5%	1/10W
R243	1-216-097-91	METAL GLAZE	100K	5%	1/10W
R244	1-216-097-91	METAL GLAZE	100K	5%	1/10W
R245	1-216-097-91	METAL GLAZE	100K	5%	1/10W
R246	1-216-097-91	METAL GLAZE	100K	5%	1/10W
R247	1-216-097-91	METAL GLAZE	100K	5%	1/10W
R248	1-216-097-91	METAL GLAZE	100K	5%	1/10W
R249	1-216-097-91	METAL GLAZE	100K	5%	1/10W
R250	1-216-097-91	METAL GLAZE	100K	5%	1/10W
R251	1-216-073-00	METAL CHIP	10K	5%	1/10W
R252	1-216-097-91	METAL GLAZE	100K	5%	1/10W
R253	1-216-097-91	METAL GLAZE	100K	5%	1/10W
R254	1-216-073-00	METAL CHIP	10K	5%	1/10W
R255	1-216-097-91	METAL GLAZE	100K	5%	1/10W
R256	1-216-025-91	METAL GLAZE	100	5%	1/10W
R257	1-216-025-91	METAL GLAZE	100	5%	1/10W
R258	1-216-025-91	METAL GLAZE	100	5%	1/10W
R259	1-216-025-91	METAL GLAZE	100	5%	1/10W
R260	1-216-025-91	METAL GLAZE	100	5%	1/10W
R261	1-216-025-91	METAL GLAZE	100	5%	1/10W
R262	1-216-025-91	METAL GLAZE	100	5%	1/10W
R263	1-216-033-00	METAL CHIP	220	5%	1/10W
R264	1-216-033-00	METAL CHIP	220	5%	1/10W
R265	1-216-025-91	METAL GLAZE	100	5%	1/10W
R266	1-216-025-91	METAL GLAZE	100	5%	1/10W
R267	1-216-025-91	METAL GLAZE	100	5%	1/10W
R268	1-216-025-91	METAL GLAZE	100	5%	1/10W
R269	1-216-025-91	METAL GLAZE	100	5%	1/10W
R270	1-216-025-91	METAL GLAZE	100	5%	1/10W
R271	1-216-025-91	METAL GLAZE	100	5%	1/10W
R272	1-216-025-91	METAL GLAZE	100	5%	1/10W
R273	1-216-025-91	METAL GLAZE	100	5%	1/10W
R275	1-216-025-91	METAL GLAZE	100	5%	1/10W
R276	1-216-025-91	METAL GLAZE	100	5%	1/10W
R277	1-216-025-91	METAL GLAZE	100	5%	1/10W
R278	1-216-025-91	METAL GLAZE	100	5%	1/10W
R279	1-216-025-91	METAL GLAZE	100	5%	1/10W
R280	1-216-025-91	METAL GLAZE	100	5%	1/10W
R281	1-216-025-91	METAL GLAZE	100	5%	1/10W
R282	1-216-025-91	METAL GLAZE	100	5%	1/10W
R283	1-216-025-91	METAL GLAZE	100	5%	1/10W
R284	1-216-025-91	METAL GLAZE	100	5%	1/10W
R285	1-216-073-00	METAL CHIP	10K	5%	1/10W
R286	1-216-097-91	METAL GLAZE	100K	5%	1/10W
R287	1-216-097-91	METAL GLAZE	100K	5%	1/10W
R288	1-216-073-00	METAL CHIP	10K	5%	1/10W
R289	1-216-097-91	METAL GLAZE	100K	5%	1/10W
R290	1-216-025-91	METAL GLAZE	100	5%	1/10W
R291	1-216-073-00	METAL CHIP	10K	5%	1/10W
R292	1-216-025-91	METAL GLAZE	100	5%	1/10W
		< VIBRATOR >			
X201	1-767-273-11	VIBRATOR, CERAMIC (CHIP TYPE) (10MHz)			
X202	1-760-458-21	VIBRATOR, CRYSTAL (32.768KHz)			

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Ref. No.	Part No.	Description			Remarks
*	1-666-744-11	DVOL BOARD ***********			
		< CAPACITOR >			
C601	1-162-294-31	CERAMIC	0.001uF	10%	50V
C602	1-104-664-11	ELECT	47uF	20%	25V
C603	1-164-159-11	CERAMIC	0.1uF		50V
		< CONNECTOR >			
* CN603	1-564-720-11	PIN, CONNECTOR (SMALL TYPE) 4P			
		< VARIABLE RESISTOR >			
RV602	1-225-494-11	RES, VAR, CARBON 10K (DIGITAL REC LEVEL)			

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Ref. No.	Part No.	Description			Remarks
*	A-4699-793-A	DIO BOARD, COMPLETE ********************			
		< CAPACITOR >			
C351	1-126-933-11	ELECT	100uF	20%	10V
C352	1-162-294-31	CERAMIC	0.001uF	10%	50V
C353	1-164-159-11	CERAMIC	0.1uF		50V
C354	1-126-933-11	ELECT	100uF	20%	10V
C355	1-164-159-11	CERAMIC	0.1uF		50V
C356	1-162-294-31	CERAMIC	0.001uF	10%	50V
C357	1-162-294-31	CERAMIC	0.001uF	10%	50V
C358	1-164-159-11	CERAMIC	0.1uF		50V
C359	1-126-933-11	ELECT	100uF	20%	10V
C360	1-136-165-00	FILM	0.1uF	5%	50V
C361	1-126-933-11	ELECT	100uF	20%	10V
C362	1-126-933-11	ELECT	100uF	20%	10V
C363	1-126-933-11	ELECT	100uF	20%	10V
C364	1-136-165-00	FILM	0.1uF	5%	50V
C365	1-136-165-00	FILM	0.1uF	5%	50V
C366	1-164-159-11	CERAMIC	0.1uF		50V
C367	1-164-159-11	CERAMIC	0.1uF		50V
C368	1-164-159-11	CERAMIC	0.1uF		50V
C369	1-104-646-11	CERAMIC	2.2uF	20%	50V
		< IC >			
IC351	8-759-926-18	IC SN74HC157ANS			
IC352	8-759-926-17	IC SN74HC153ANS			
IC353	8-759-269-92	IC SN74HCU04ANS-E20			
IC354	8-749-921-12	IC GP1F32T (DIGITAL OUT OPTICAL)			
IC355	8-759-430-27	IC GP1F37R (DIGITAL IN OPT1)			
IC356	8-759-430-27	IC GP1F37R (DIGITAL OPT2)			
		< JACK >			
J351	1-568-750-21	JACK, PIN (1P SHIELD TYPE) (DIGITAL IN COXIAL)			
		< COIL >			
L351	1-408-405-00	INDUCTOR	4.7uH		
L352	1-408-405-00	INDUCTOR	4.7uH		
L353	1-408-405-00	INDUCTOR	4.7uH		

Ref. No.	Part No.	Description			Remarks
		< RESISTOR >			
R351	1-259-404-11	CARBON	100	5%	1/6W
R352	1-259-404-11	CARBON	100	5%	1/6W
R353	1-259-404-11	CARBON	100	5%	1/6W
R354	1-259-404-11	CARBON	100	5%	1/6W
R355	1-259-404-11	CARBON	100	5%	1/6W
R356	1-259-404-11	CARBON	100	5%	1/6W
R357	1-259-452-11	CARBON	10K	5%	1/6W
R358	1-259-476-11	CARBON	100K	5%	1/6W
R359	1-259-404-11	CARBON	100	5%	1/6W
R360	1-259-452-11	CARBON	10K	5%	1/6W
R361	1-259-404-11	CARBON	100	5%	1/6W
R363	1-259-404-11	CARBON	100	5%	1/6W
R364	1-259-404-11	CARBON	100	5%	1/6W
R365	1-259-401-11	CARBON	75	5%	1/6W
R366	1-259-404-11	CARBON	100	5%	1/6W

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Ref. No.	Part No.	Description			Remarks
*	A-4699-794-A	DISP BOARD, COMPLETE **********************			
*	3-362-478-11	HOLDER (T), LED			
*	4-987-501-01	HOLDER (FL)			
		< CAPACITOR >			
C701	1-164-159-11	CERAMIC	0.1uF		50V
C702	1-162-282-31	CERAMIC	100PF	10%	50V
C703	1-164-159-11	CERAMIC	0.1uF		50V
C704	1-126-154-11	ELECT	47uF	20%	6.3V
C705	1-162-282-31	CERAMIC	100PF	10%	50V
C706	1-162-282-31	CERAMIC	100PF	10%	50V
C707	1-162-282-31	CERAMIC	100PF	10%	50V
C708	1-162-294-31	CERAMIC	0.001uF	10%	50V
C709	1-162-302-11	CERAMIC	0.0022uF	30%	16V
C710	1-162-302-11	CERAMIC	0.0022uF	30%	16V
C712	1-164-159-11	CERAMIC	0.1uF		50V
C713	1-164-159-11	CERAMIC	0.1uF		50V
C714	1-164-159-11	CERAMIC	0.1uF		50V
C715	1-162-286-31	CERAMIC	220PF	10%	50V
C716	1-162-286-31	CERAMIC	220PF	10%	50V
		< CONNECTOR >			
CN701	1-766-201-11	SOCKET, CONNECTOR PIN 11P			
CN702	1-580-473-11	SOCKET, CONNECTOR 26P			
		< DIODE >			
D701	8-719-301-39	DIODE SEL2210S (●)			
D702	8-719-301-49	DIODE SEL2810A (❚❚)			
D703	8-719-303-02	DIODE SEL2510C-D (►)			
		< FILTER >			
FL701	1-517-620-11	INDICATOR TUBE, FLUORESCENT			
		< IC >			
IC701	8-759-297-23	IC M66004M8FP			
		< TRANSISTOR >			
Q701	8-729-900-80	TRANSISTOR DTC114ES			
Q702	8-729-900-80	TRANSISTOR DTC114ES			
Q703	8-729-900-80	TRANSISTOR DTC114ES			

Ref. No.	Part No.	Description			Remarks	
		< RESISTOR >				
R701	1-249-435-11	CARBON	33K	5%	1/4W	
R702	1-247-807-31	CARBON	100	5%	1/4W	
R703	1-247-807-31	CARBON	100	5%	1/4W	
R704	1-247-807-31	CARBON	100	5%	1/4W	
R705	1-247-807-31	CARBON	100	5%	1/4W	
R709	1-249-429-11	CARBON	10K	5%	1/4W	
R710	1-249-429-11	CARBON	10K	5%	1/4W	
R723	1-249-435-11	CARBON	33K	5%	1/4W	
R724	1-249-429-11	CARBON	10K	5%	1/4W	
R725	1-249-425-11	CARBON	4.7K	5%	1/4W	F
R726	1-247-843-11	CARBON	3.3K	5%	1/4W	
R727	1-249-421-11	CARBON	2.2K	5%	1/4W	F
R728	1-249-429-11	CARBON	10K	5%	1/4W	
R729	1-249-435-11	CARBON	33K	5%	1/4W	
R730	1-249-429-11	CARBON	10K	5%	1/4W	
R731	1-249-425-11	CARBON	4.7K	5%	1/4W	F
R732	1-247-843-11	CARBON	3.3K	5%	1/4W	
R733	1-249-421-11	CARBON	2.2K	5%	1/4W	F
R734	1-249-409-11	CARBON	220	5%	1/4W	F
R735	1-249-409-11	CARBON	220	5%	1/4W	F
R736	1-249-429-11	CARBON	10K	5%	1/4W	
R737	1-249-412-11	CARBON	390	5%	1/4W	F
		< SWITCH >				
S702	1-475-315-11	ENCODER, ROTARY (AMS)				
S717	1-554-303-21	SWITCH, TACTILE (OPEN/CLOSE)				
S718	1-554-303-21	SWITCH, TACTILE (EDIT/YES)				
S719	1-554-303-21	SWITCH, TACTILE (EDIT/NO)				
S720	1-554-303-21	SWITCH, TACTILE (●)				
S721	1-554-303-21	SWITCH, TACTILE (❚❚)				
S722	1-554-303-21	SWITCH, TACTILE (►)				
S723	1-554-303-21	SWITCH, TACTILE (◄◄)				
S724	1-554-303-21	SWITCH, TACTILE (►►)				
S725	1-554-303-21	SWITCH, TACTILE (■)				

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Ref. No.	Part No.	Description			Remarks
*	1-666-743-11	HP BOARD *********			
		< CAPACITOR >			
C651	1-162-207-31	CERAMIC	22PF	5%	50V
C652	1-162-207-31	CERAMIC	22PF	5%	50V
C653	1-126-022-11	ELECT	47uF	20%	25V
C654	1-126-022-11	ELECT	47uF	20%	25V
C655	1-162-294-31	CERAMIC	0.001uF	10%	50V
C656	1-162-294-31	CERAMIC	0.001uF	10%	50V
C657	1-164-159-11	CERAMIC	0.1uF		50V
C658	1-164-159-11	CERAMIC	0.1uF		50V
		< CONNECTOR >			
CN651	1-564-723-11	PIN, CONNECTOR (SMALL TYPE) 7P			
		< IC >			
IC651	8-759-712-02	IC NJM2114D			
		< JACK >			
J651	1-770-904-11	JACK (LARGE TYPE) (PHONES)			

Ref. No.	Part No.	Description				Remarks
		< TRANSISTOR >				
Q651	8-729-231-55	TRANSISTOR 2SC2878-AB				
Q652	8-729-231-55	TRANSISTOR 2SC2878-AB				
Q653	8-729-231-55	TRANSISTOR 2SC2878-AB				
Q654	8-729-231-55	TRANSISTOR 2SC2878-AB				
		< RESISTOR >				
R651	1-259-460-11	CARBON	22K	5%	1/6W	
R652	1-259-460-11	CARBON	22K	5%	1/6W	
R653	1-259-444-11	CARBON	4.7K	5%	1/6W	
R654	1-259-458-11	CARBON	18K	5%	1/6W	
R655	1-259-444-11	CARBON	4.7K	5%	1/6W	
R656	1-259-458-11	CARBON	18K	5%	1/6W	
R657	1-259-406-11	CARBON	120	5%	1/6W	
R658	1-259-406-11	CARBON	120	5%	1/6W	
R659	1-259-444-11	CARBON	4.7K	5%	1/6W	
R660	1-259-444-11	CARBON	4.7K	5%	1/6W	
R661	1-259-444-11	CARBON	4.7K	5%	1/6W	
R662	1-259-444-11	CARBON	4.7K	5%	1/6W	
R665	1-259-428-11	CARBON	1K	5%	1/6W	
R666	1-259-428-11	CARBON	1K	5%	1/6W	
		< VARIABLE RESISTOR >				
RV651	1-225-492-11	RES, VAR, CARBON 20K/20K (PHONE LEVEL)				

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Ref. No.	Part No.	Description	Remarks
*	1-663-896-11	HLIM BOARD ***********	
		< CONNECTOR >	
* CN195	1-750-148-11	SOCKET, CONNECTOR (PC BOARD) 5P	
		< SWITCH >	
SW193	1-762-010-11	SWITCH, LEVER (HEAD DOWN DET)	
SW194	1-762-010-11	SWITCH, LEVER (HEAD UP DET)	

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Ref. No.	Part No.	Description	Remarks
*	1-663-899-11	HMOT BOARD ***********	
		< CONNECTOR >	
* CN196	1-568-947-11	PIN, CONNECTOR 9P	
CN197	1-568-940-21	PIN, CONNECTOR 2P	
* CN198	1-568-941-11	PIN, CONNECTOR 3P	
CN199	1-778-987-11	PIN,BOARD TO BOARD CONNECTOR5P	
		< MOTOR >	
M192	X-4947-821-1	MOTOR ASSY, HEAD	

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Ref. No.	Part No.	Description	Remarks
*	1-663-897-11	IN BOARD ********	
		< CONNECTOR >	
CN191	1-506-481-11	PIN, CONNECTOR 2P	
* CN192	1-568-941-11	PIN, CONNECTOR 3P	
		< SWITCH >	
SW191	1-571-300-21	SWITCH, ROTARY (LOAD IN DET)	

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Ref. No.	Part No.	Description	Remarks
*	1-663-900-11	LMOT BOARD ***********	
		< MOTOR >	
M191	X-4947-824-1	MOTOR (LOADING) ASSY	

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Ref. No.	Part No.	Description	Remarks
*	1-663-898-11	OUT BOARD **********	
		< CONNECTOR >	
CN193	1-506-481-11	PIN, CONNECTOR 2P	
		< SWITCH >	
SW192	1-571-300-21	SWITCH, ROTARY (LOAD OUT DET)	

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Ref. No.	Part No.	Description				Remarks
*	1-666-750-11	PJ BOARD *********				
		< CAPACITOR >				
C598	1-110-335-11	MYLAR	100PF	5%	50V	
C599	1-110-335-11	MYLAR	100PF	5%	50V	
		< CONNECTOR >				
* CN581	1-564-519-11	PLUG, CONNECTOR 4P				
		< JACK >				
PJ501	1-568-101-11	JACK, PIN 4P (LINE (ANALOG))				
		< RESISTOR >				
R591	1-249-528-91	CARBON	100	5%	1/4W	
R592	1-249-528-91	CARBON	100	5%	1/4W	
R593	1-249-528-91	CARBON	100	5%	1/4W	
R594	1-249-528-91	CARBON	100	5%	1/4W	

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Ref. No.	Part No.	Description				Remarks
*	A-4699-796-A	PSW BOARD, COMPLETE *********************				
	4-976-360-02	REINFORCEMENT (CONT)				
*	4-972-608-01	HOLDER (DIA. 5), LED				
		< CAPACITOR >				
C711	1-162-294-31	CERAMIC	0.001uF	10%	50V	
C781	1-162-294-31	CERAMIC	0.001uF	10%	50V	
C782	1-164-159-11	CERAMIC	0.1uF		50V	
C783	1-164-159-11	CERAMIC	0.1uF		50V	
C784	1-126-154-11	ELECT	47uF	20%	6.3V	
C785	1-126-154-11	ELECT	47uF	20%	6.3V	
		< CONNECTOR >				
CN781	1-766-204-11	PLUG, CONNECTOR PIN 11P				
		< DIODE >				
D704	8-719-303-02	DIODE SEL2510C-D (FILTER)				
D781	8-719-313-40	DIODE SEL1516W (POWER)				

PSW **PW**

Ref. No.	Part No.	Description			Remarks
		< IC >			
IC781	8-759-332-18	IC GP1U27XB			
		< TRANSISTOR >			
Q704	8-729-900-80	TRANSISTOR DTC114ES			
Q781	8-729-422-57	TRANSISTOR UN4111			
		< RESISTOR >			
R706	1-249-429-11	CARBON	10K	5%	1/4W
R707	1-249-429-11	CARBON	10K	5%	1/4W
R708	1-249-429-11	CARBON	10K	5%	1/4W
R716	1-249-429-11	CARBON	10K	5%	1/4W
R717	1-249-435-11	CARBON	33K	5%	1/4W
R718	1-249-429-11	CARBON	10K	5%	1/4W
R719	1-249-425-11	CARBON	4.7K	5%	1/4W F
R720	1-247-843-11	CARBON	3.3K	5%	1/4W
R721	1-249-421-11	CARBON	2.2K	5%	1/4W F
R722	1-249-429-11	CARBON	10K	5%	1/4W
R738	1-249-411-11	CARBON	330	5%	1/4W
R781	1-249-415-11	CARBON	680	5%	1/4W F
R782	1-249-429-11	CARBON	10K	5%	1/4W
R783	1-249-429-11	CARBON	10K	5%	1/4W
R784	1-249-409-11	CARBON	220	5%	1/4W F
R785	1-247-807-31	CARBON	100	5%	1/4W
		< SWITCH >			
S701	1-771-171-11	SWITCH, ROTARY (INPUT)			
S709	1-554-303-21	SWITCH, TACTILE (PLAY MODE)			
S710	1-554-303-21	SWITCH, TACTILE (FILTER)			
S711	1-554-303-21	SWITCH, TACTILE (SCROLL/CLOCK SET)			
S712	1-554-303-21	SWITCH, TACTILE (REPEAT)			
S713	1-554-303-21	SWITCH, TACTILE (TIME)			
S714	1-554-303-21	SWITCH, TACTILE (DISPLAY/CHAR)			
S781	1-572-625-11	SWITCH, SLIDE (TIMER)			
S782	1-554-303-21	SWITCH, TACTILE (POWER)			

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Ref. No.	Part No.	Description			Remarks
*	A-4699-791-A	PW BOARD, COMPLETE (US,Canadian) *******************			
*	A-4699-804-A	PW BOARD, COMPLETE (AEP,UK,G) *******************			
*	3-309-144-21	HEAT SINK			
*	4-363-146-00	HEAT SINK, V.OUT			
*	4-921-402-01	HEAT SINK			
	7-685-646-79	SCREW +BVTP 3X8 TYPE2 N-S			
		< BATTERY >			
BT901	1-528-739-11	BATTERY, LITHIUM			
		< CAPACITOR >			
C901	1-164-159-11	CERAMIC	0.1uF		50V
C902	1-126-963-11	ELECT	4.7uF	20%	50V
C903	1-164-159-11	CERAMIC	0.1uF		50V
C904	1-126-963-11	ELECT	4.7uF	20%	50V
C905	1-126-927-11	ELECT	2200uF	20%	10V
C906	1-164-159-11	CERAMIC	0.1uF		50V
C907	1-126-933-11	ELECT	100uF	20%	16V
C909	1-126-927-11	ELECT	2200uF	20%	10V
C911	1-126-960-11	ELECT	1uF	20%	50V
C912	1-164-159-11	CERAMIC	0.1uF		50V

Ref. No.	Part No.	Description			Remarks
C913	1-164-159-11	CERAMIC	0.1uF		50V
C914	1-126-937-11	ELECT	4700uF	20%	16V
C915	1-164-159-11	CERAMIC	0.1uF		50V
C916	1-164-159-11	CERAMIC	0.1uF		50V
C917	1-124-557-11	ELECT	1000uF	20%	25V
C918	1-117-149-21	ELECT	2200uF	20%	25V
C919	1-126-926-11	ELECT	1000uF	20%	10V
C920	1-164-159-11	CERAMIC	0.1uF		50V
C922	1-164-159-11	CERAMIC	0.1uF		50V
C923	1-164-159-11	CERAMIC	0.1uF		50V
C924	1-126-926-11	ELECT	1000uF	20%	10V
C926	1-164-159-11	CERAMIC	0.1uF		50V
C927	1-126-969-11	ELECT	220uF	20%	50V
C928	1-164-159-11	CERAMIC	0.1uF		50V
C929	1-117-401-11	ELECT	22000uF	20%	16V
C930	1-161-494-00	CERAMIC	0.022uF		25V
C932	1-117-896-11	ELECT	6800uF	20%	35V
C933	1-117-896-11	ELECT	6800uF	20%	35V
C934	1-164-159-11	CERAMIC	0.1uF		50V
C935	1-126-965-11	ELECT	22uF	20%	50V
C936	1-128-553-11	ELECT	220uF	20%	63V
C937	1-126-935-11	ELECT	470uF	20%	16V
C938	1-126-964-11	ELECT	10uF	20%	50V
C939	1-136-153-00	FILM	0.01uF	5%	50V
C940	1-136-153-00	FILM	0.01uF	5%	50V
C941	1-164-159-11	CERAMIC	0.1uF		50V
C942	1-164-159-11	CERAMIC	0.1uF		50V
C943	1-164-159-11	CERAMIC	0.1uF		50V
C944	1-164-159-11	CERAMIC	0.1uF		50V
		< CONNECTOR >			
CN901	1-580-460-11	SOCKET, CONNECTOR 26P			
CN903	1-564-513-11	PLUG, CONNECTOR 10P			
* CN905	1-564-704-11	PIN, CONNECTOR (SMALL TYPE) 2P			
		< DIODE >			
D901	8-719-987-63	DIODE 1N4148M			
D902	8-719-987-63	DIODE 1N4148M			
D903	8-719-987-63	DIODE 1N4148M			
D904	8-719-987-63	DIODE 1N4148M			
D905	8-719-200-82	DIODE 11ES2			
D907	8-719-210-21	DIODE 11EQS04			
D908	8-719-210-21	DIODE 11EQS04			
D909	8-719-210-29	DIODE F10P10Q			
D911	8-719-210-29	DIODE F10P10Q			
D913	8-719-014-96	DIODE UZP-7.5BC			
D914	8-719-987-63	DIODE 1N4148M			
D915	8-719-210-29	DIODE F10P10Q			
D916	8-719-210-29	DIODE F10P10Q			
D917	8-719-987-63	DIODE 1N4148M			
D918	8-719-200-77	DIODE 10E2N			
D919	8-719-200-77	DIODE 10E2N			
D920	8-719-200-77	DIODE 10E2N			
D921	8-719-200-77	DIODE 10E2N			
D922	8-719-200-77	DIODE 10E2N			
D923	8-719-987-63	DIODE 1N4148M			
D924	8-719-987-63	DIODE 1N4148M			

Ref. No.	Part No.	Description	Remarks
		< GROUND >	
* EP901	4-870-539-00	PLATE, GROUND	
* EP902	4-870-539-00	PLATE, GROUND	
		< FUSE >	
⚠F901	1-532-771-21	FUSE, MICRO (SECONDARY)(315mA/125V)	(US,Canadian)
⚠F904	1-532-782-11	FUSE, MICRO (SECONDARY)(4A/125V)	(US,Canadian)
⚠F905	1-532-782-11	FUSE, MICRO (SECONDARY)(4A/125V)	(US,Canadian)
		< IC >	
IC901	8-759-327-15	IC M62005L	
IC902	8-759-061-65	IC LA5602	
IC903	8-759-604-45	IC M5F79M12	
IC904	8-759-604-39	IC M5F78M12	
IC905	8-759-513-71	IC PQ05RF21	
IC906	8-759-925-74	IC SN74HC04ANS	
IC907	8-759-513-71	IC PQ05RF21	
IC908	8-759-633-42	IC M5293L	
IC909	8-759-520-49	IC PQ30RV21	
		< IC LINK >	
⚠ICP901	1-532-834-21	LINK, IC (PRF315)(315mA)(AEP,UK,G)	
⚠ICP904	1-532-845-21	LINK, IC (PRF4000)(4A)(AEP,UK,G)	
⚠ICP905	1-532-845-21	LINK, IC (PRF4000)(4A)(AEP,UK,G)	
		< TRANSISTOR >	
Q901	8-729-902-80	TRANSISTOR DTA114YS	
Q902	8-729-902-80	TRANSISTOR DTA114YS	
Q903	8-729-422-57	TRANSISTOR UN4111	
Q905	8-729-140-98	TRANSISTOR 2SD773-34	
		< RESISTOR >	
R901	1-259-452-11	CARBON 10K 5%	1/6W
R902	1-259-452-11	CARBON 10K 5%	1/6W
R903	1-259-404-11	CARBON 100 5%	1/6W
R904	1-215-404-00	METAL 200 1%	1/4W
R905	1-215-414-00	METAL 510 1%	1/4W
R906	1-259-428-11	CARBON 1K 5%	1/6W
R907	1-259-488-11	CARBON 330K 5%	1/6W
R908	1-259-404-11	CARBON 100 5%	1/6W
R909	1-259-468-11	CARBON 47K 5%	1/6W
R910	1-259-444-11	CARBON 4.7K 5%	1/6W
R911	1-259-460-11	CARBON 22K 5%	1/6W
R912	1-259-468-11	CARBON 47K 5%	1/6W
R913	1-259-428-11	CARBON 1K 5%	1/6W
R914	1-259-404-11	CARBON 100 5%	1/6W
R915	1-259-404-11	CARBON 100 5%	1/6W
R916	1-259-432-11	CARBON 1.5K 5%	1/6W
R917	1-259-416-11	CARBON 330 5%	1/6W
		< RELAY >	
RY901	1-515-925-11	RELAY	

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Ref. No.	Part No.	Description	Remarks
		MISCELLANEOUS	
		**************	
58	1-782-216-11	WIRE (FLAT TYPE) (30 CORE)	
59	1-782-215-11	WIRE (FLAT TYPE) (18 CORE) (10cm)	
60	1-777-738-11	WIRE (FLAT TYPE) (26 CORE) (18cm)	
61	1-777-737-11	WIRE (FLAT TYPE) (16 CORE)	
62	1-777-735-11	WIRE (FLAT TYPE) (18 CORE) (7.5cm)	
⚠68	1-558-568-21	CORD, POWER (AEP,UK,G)	
⚠68	1-782-959-11	CORD, POWER (US,Canadian)	
106	1-777-736-11	WIRE (FLAT TYPE) (26 CORE) (9.5cm)	
⚠457	8-583-009-12	OPTICAL PICK-UP KMS-210A/J-N	
HR901	1-500-304-21	HEAD, OVER WRITE	
M101	A-4660-651-A	MOTOR ASSY (SLED)	
M102	A-4660-650-A	CHASSIS ASSY, BU (SPINDLE)	
M191	X-4947-824-1	MOTOR (LOADING) ASSY	
M192	X-4947-821-1	MOTOR ASSY, HEAD	
S102	1-762-148-11	SWITCH, PUSH (2 KEY)(PROTECT/REFLECT)	
⚠T001	1-431-469-11	TRANSFORMER, POWER (US,Canadian)	
⚠T001	1-431-470-11	TRANSFORMER, POWER (AEP,UK,G)	

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ACCESSORIES & PACKING MATERIALS
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Ref. No.	Part No.	Description	Remarks
	1-475-091-11	REMOTE COMMANDER (RM-D13M)	
	1-590-925-31	CORD, CONNECTION (AUDIO 1m)	
	3-861-101-11	MANUAL, INSTRUCTION (ENGLISH/FRENCH)	
	3-861-101-21	MANUAL, INSTRUCTION (SPANISH/GERMAN/ITALIAN) (AEP, G)	
	3-861-101-31	MANUAL, INSTRUCTION (DUTCH/SWEDISH/PORTUGUESE) (AEP)	
	4-983-537-01	COVER, BATTERY (for RM-D13M)	

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HARDWARE LIST
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Ref. No.	Part No.	Description	Remarks
#1	7-685-885-09	SCREW +BVTT 4X16 (S)	
#2	7-682-247-09	SCREW +K 3X6	
#3	7-685-103-19	SCREW +P 2X5 TYPE2 NON-SLIT	
#4	7-685-873-09	SCREW +BVTT 3X10 (S)	
#5	7-685-645-79	SCREW +BVTP 3X6 TYPE2 N-S	
#6	7-685-871-01	SCREW +BVTT 3X6 (S)	
#7	7-682-548-09	SCREW (3X8)	
#8	7-621-770-87	SCREW	
#9	7-621-775-10	SCREW +B 2.6X4	
#10	7-627-553-38	SCREW,PRECISION +P 2X3	
#11	7-685-105-19	TPG +P 2X8, TYPE2, NON-SLIT	
#12	7-627-852-48	SCREW, PRECISION +P 1.7X3.5 TYPE3	
#13	7-627-553-48	SCREW, PRECISION +P 2X4	
#14	7-685-133-19	SCREW +P 2.6X6 TYPE2	
#15	7-685-533-19	SCREW +BTP 2.6X6 TYPE2 N-S	

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety. Replace only with part number specified.	Les composants identifiés par une marque ⚠ sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

9-920-951-11

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